

# PONY

سلسلة كتب الأستاذ

# Math

## Main Book

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4<sup>th</sup>  
Primary

Second Term



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# Theme 3

## Fractions, Decimals, and Proportional Relationships



### Theme Units

#### Unit 9 Fractions

Concept 9.1: Composing and Decomposing Fractions

Concept 9.2: Comparing Fractions

Concept 9.3: Multiplication and Fractions

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Concept 10.1: Understanding Decimals

Concept 10.2: Decimals and Fractions

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#### Unit 11 Data With Fractions

Concept 11.1: Creating and Analyzing Graphs

# Unit

# 9

# Fractions



## Concept 9.1

### Composing and Decomposing Fractions

#### Lessons 1–3

#### Unit Fractions Decomposing Fractions

##### Learning Objectives:

By the end of these lessons, the student will be able to:

- Define unit fractions.
- Identify unit fractions.
- Compose other fractions using unit fractions.
- Decompose fractions into unit fractions.
- Represent fractions using repeated addition and subtraction of unit and other fractions.

#### Lesson 4

#### Fractions and Mixed Numbers

##### Learning Objectives:

By the end of this lesson, the student will be able to:

- Define mixed numbers.
- Define improper fractions.
- Explain how mixed numbers and improper fractions relate to unit fractions.

#### Lesson 5

#### Adding and Subtracting Fractions

##### Learning Objective:

By the end of this lesson, the student will be able to:

- Add and subtract fractions and whole numbers.

#### Lesson 6

#### Adding Mixed Numbers

##### Learning Objective:

By the end of this lesson, the student will be able to:

- Add mixed numbers with like denominators.

#### Lesson 7

#### Subtracting Mixed Numbers

##### Learning Objective:

By the end of this lesson, the student will be able to:

- Subtract mixed numbers with like denominators.

Lessons  
1-3

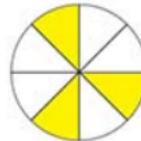
## Unit Fractions &amp; Decomposing Fractions

## Fraction

It is a number named a **part of a whole** or a **part of a group**.

**Ex.** The opposite figure represents a circle divided into **8 equal parts**; **3** of them are shaded.

- The fraction that represents the **shaded parts** is:



Numerator **Shaded parts**

$$\frac{3}{8}$$

**Three - eighths**

Denominator **All parts**

**Ex.**

$$\frac{4}{6}$$



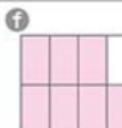
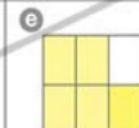
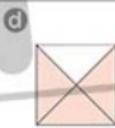
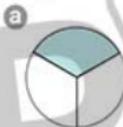
It's read as: **Four-sixths**

$$\frac{2}{5}$$



It's read as: **Two-fifths**

- 1 Write the fraction of the **shaded parts** in fraction and word forms:



## 2 Shade the parts that represent the written fraction:

a



Two-thirds

b



Four-sixths

c



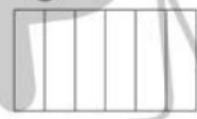
Three-eighths

d



Two-fifths

e



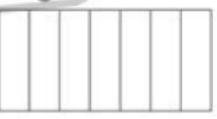
Two-sixths

f



Three-fourths

g



Five-sevenths

## Unit Fraction

It's any fraction that has 1 as the numerator. It represents one part only.

- The following figures represent examples of unit fractions:


 $\frac{1}{2}$  (One-half)

 $\frac{1}{5}$  (One-fifth)

 $\frac{1}{3}$  (One-third)

 $\frac{1}{6}$  (One-sixth)

 $\frac{1}{4}$  (One-fourth)

 $\frac{1}{7}$  (One-seventh)

## Composing Fractions

It means putting fractions together to get a **new fraction** or **one whole**.

### Composing One Whole Using Unit Fractions:



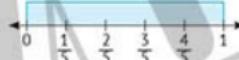
Three-thirds = One whole

$$\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = 1$$



Four-fourths = One whole

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 1$$



Five-fifths = One whole

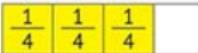
$$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = 1$$

### Composing Fractions Using Unit Fractions:



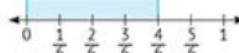
Two-thirds

$$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$$



Three-fourths

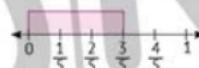
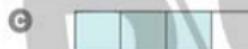
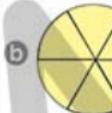
$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$$



Four-sixths

$$\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \frac{4}{6}$$

3 Look at the following models, then write an equation using **unit fractions** to show how the fraction is formed:



4 Complete:

a  $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \underline{\hspace{2cm}}$

b  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \underline{\hspace{2cm}}$

c  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \underline{\hspace{2cm}}$

d  $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \underline{\hspace{2cm}}$

e  $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \underline{\hspace{2cm}}$

f  $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \underline{\hspace{2cm}}$

## Decomposing Fractions

It means breaking the fraction into separate **units or parts**.

**Ex.**

In the opposite figure, the fraction that represents the shaded parts is  $\frac{5}{8}$ .



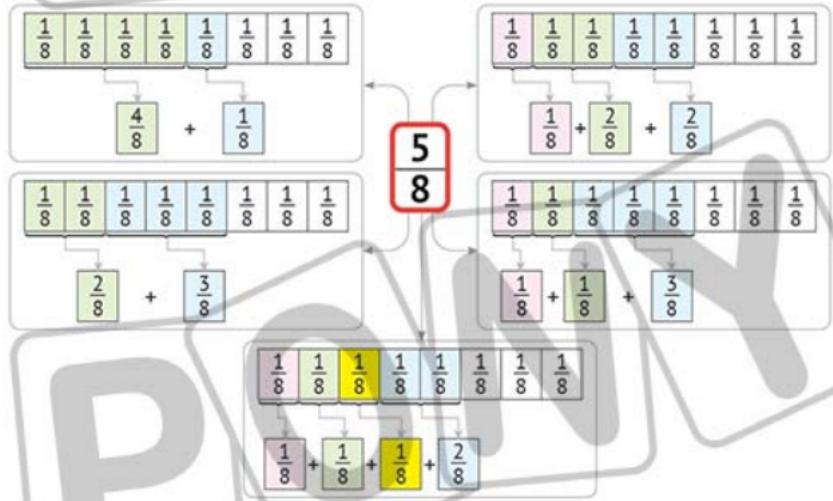
### Decomposing a Fraction:

Using Unit Fractions

$$\frac{5}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$$

Using Fractions

We can decompose a fraction in more than one way, as follows:



### 5 Decompose the following into **unit fractions**:

a)  $\frac{4}{5} = \dots + \dots + \dots + \dots$

b)  $\frac{3}{8} = \dots$

c) One whole =  $\dots + \dots + \dots + \dots$

d)  $\frac{2}{3} = \dots$

6 Decompose each of the following fractions in **two different ways**:

a

$$\frac{3}{5}$$

c

$$\frac{6}{8}$$

7

Mazen needs  $\frac{3}{4}$  cup of sugar for a recipe he is making. If he has a measuring cup that can hold  $\frac{1}{4}$  of the amount, how many times will he need to fill the measuring cup to complete his recipe?

Draw a **model** and write an **equation** using **unit fractions** to show your answer.

8

The opposite figure represents a pizza that is divided into **equal** parts. Wafaa ate some parts of the pizza; only **one** piece remained after she finished eating.



Write an **equation** using **unit fractions** to represent the number of pieces Wafaa had eaten.

9 The following number line represents the track of a relay race. The team consists of 3 runners, where each runner runs for a certain part of the track, and then he stops and the following runner continues on.



Complete:

- Runner (1) started at the "Start" sign and stopped at \_\_\_\_\_.
- Runner (2) started at \_\_\_\_\_ and stopped at \_\_\_\_\_.
- Runner (3) started at \_\_\_\_\_ and stopped at the "Finish" sign.



10

1 Complete:

- Six-sevenths = \_\_\_\_\_
- $\frac{2}{5} + \frac{1}{5} =$  \_\_\_\_\_
- $1 = \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7}$
- $\frac{1}{6} =$  \_\_\_\_\_

2 Choose the correct answer:

- $\frac{1}{2} =$  1
- Eight  $\frac{8}{3}$  = \_\_\_\_\_ (thirds or halves or fourths or sixths)
- $\frac{3}{8} + \frac{3}{8} = \frac{7}{8}$  (  $\frac{3}{8}$  or  $\frac{5}{8}$  or  $\frac{4}{8}$  or  $\frac{6}{8}$  )
- $\frac{5}{9} =$  \_\_\_\_\_ ( 5 ninths or 5 sixths or 9 fifths or 4 fifths )

3 Answer the following:

Farida's mother prepared a cake to celebrate her daughter's birthday. She divided the cake into 8 equal pieces. Farida's friends ate 7 pieces. How many pieces of cake are left?

Lesson  
4

## Fractions and Mixed Numbers

## Fractions

## Proper Fractions

## Proper Fraction

Its numerator is **smaller** than its denominator.

## Improper Fractions

## Whole Numbers

## Mixed Numbers

Ex.  $\frac{3}{4}, \frac{2}{5}$

Proper Fraction  $< 1$

## Improper Fraction

Its numerator is **equal** to or **greater** than its denominator.

## Whole Number

If the numerator is **divisible** by the denominator, it's a whole number.

Ex. 

Improper Fraction  $\rightarrow \frac{3}{3} = 1$  **Whole Number**

Ex. 

Improper Fraction  $\rightarrow \frac{15}{5} = 3$  **Whole Number**

Improper Fraction = 1

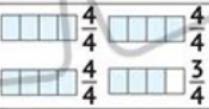
Or

Improper Fraction  $> 1$

## Mixed Number

## Whole Number + Fraction

If the numerator is **not divisible** by the denominator, it's a mixed number.

Ex. 

Improper Fraction  $\rightarrow \frac{15}{4} = 3 \frac{3}{4}$

Mixed Number

Whole Number Fraction

It's read as: Three and three fourths.

1 Complete using "a proper fraction, an improper fraction, a mixed number, or a whole number:

a  $\frac{3}{5}$  is .....

c 7 is .....

e Three-eighths is .....

g Nineteen is .....

b  $\frac{4}{4}$  is .....

d  $3\frac{4}{5}$  is .....

f Six-thirds is .....

h Three and two sevenths is .....

Changing From One Form to Another

1 Improper fraction to → whole number

Numerator

÷

Denominator

= Whole Number

(Since there is no remainder for the division.)

e  $\frac{12}{3} = 4$   $12 \div 3 = 4$

e  $\frac{28}{4} = 7$   $28 \div 4 = 7$

2 Complete the following:

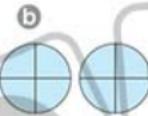


$\frac{9}{3} =$  .....

g  $\frac{18}{6} =$  .....

j  $\frac{1}{7} = 3$  .....

m  $\frac{16}{4} = 8$  .....



e  $\frac{24}{8} =$  .....

h  $\frac{35}{5} =$  .....

k  $\frac{9}{1} = 1$  .....

n  $\frac{36}{9} = 4$  .....



f  $\frac{25}{5} =$  .....

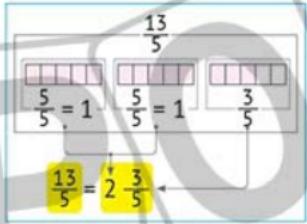
i  $\frac{42}{7} =$  .....

l  $\frac{32}{8} = 4$  .....

o  $\frac{4}{4} = 1$  .....

2 Improper fraction  $\rightarrow$  mixed number

Numerator  $\div$  Denominator = The Quotient The Whole Number and The Remainder The New Numerator



$$13 \div 5 = 2, \text{ and the remainder is } 3$$

$$\frac{13}{5} = 2 \frac{3}{5}$$

The denominator without any change

## 3 Write each fraction as a mixed number:

a



$$\frac{8}{3} = \underline{\quad} \frac{\underline{\quad}}{\underline{\quad}}$$

c

$$\frac{15}{4} = \underline{\quad} \frac{\underline{\quad}}{\underline{\quad}}$$

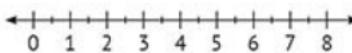
e

$$\frac{12}{7} = \underline{\quad} \frac{\underline{\quad}}{\underline{\quad}}$$

g

$$\frac{67}{6} = \underline{\quad} \frac{\underline{\quad}}{\underline{\quad}}$$

b



$$\frac{13}{2} = \underline{\quad} \frac{\underline{\quad}}{\underline{\quad}}$$

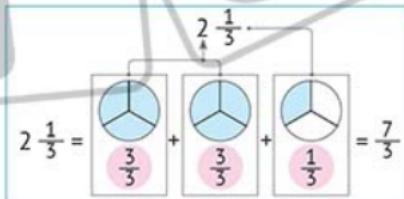
$$\frac{84}{9} = \underline{\quad} \frac{\underline{\quad}}{\underline{\quad}}$$

$$\frac{19}{6} = \underline{\quad} \frac{\underline{\quad}}{\underline{\quad}}$$

$$\frac{48}{5} = \underline{\quad} \frac{\underline{\quad}}{\underline{\quad}}$$

3 Mixed number  $\rightarrow$  improper fraction

Denominator  $\times$  Whole Number + Numerator = New Numerator



$$2 \frac{1}{3} = \frac{(3 \times 2) + 1}{3} = \frac{7}{3}$$

The denominator without any change

## 4 Write each mixed number as an improper fraction:

c  $3\frac{1}{5} = \underline{\hspace{2cm}}$

d  $7\frac{1}{2} = \underline{\hspace{2cm}}$

e  $1\frac{1}{2} = \underline{\hspace{2cm}}$

f  $4\frac{3}{7} = \underline{\hspace{2cm}}$

g  $3\frac{5}{6} = \underline{\hspace{2cm}}$

h  $2\frac{2}{5} = \underline{\hspace{2cm}}$



10

## 1 Complete:

a  $\frac{3}{8}$  is a/an  fraction.

b  $\frac{\underline{\hspace{2cm}}}{8} = 3$

c  $\frac{16}{5} = \underline{\hspace{2cm}}$

d Nine-fourths =  $\underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

e  $\underline{\hspace{2cm}} = 4\frac{2}{3}$

## 2 Choose the correct answer:

a  $\underline{\hspace{2cm}} = \frac{1}{7} + \frac{1}{7} + \frac{2}{7}$  (  $\frac{4}{21}$  or  $\frac{4}{7}$  or  $\frac{1}{21}$  or  $\frac{21}{4}$  )

b  $3\frac{2}{7}$  is a/an  ( proper fraction or improper fraction or mixed number or whole number )

c  $\frac{\underline{\hspace{2cm}}}{4} = 4\frac{2}{4}$  ( 20 or 12 or 16 or 18 )

## 3 Answer the following:

Shade the models according to the mixed number:

a

$4\frac{3}{4}$



b

$3\frac{4}{5}$



Lesson  
5

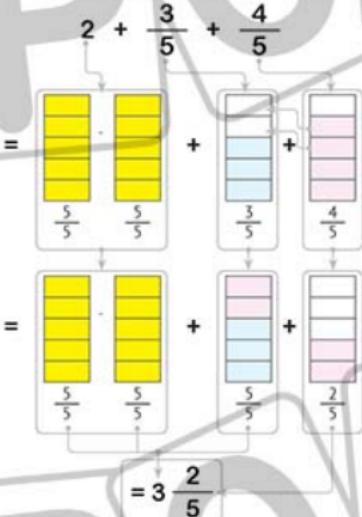
Theme 3

## Adding and Subtracting Fractions

## 1 Adding Fractions and Whole Numbers:

Ex. Add:  $2 + \frac{3}{5} + \frac{4}{5}$ 

## First: Using Models



## Second: Using Regrouping

$$\begin{aligned}
 & 2 + \frac{3}{5} + \frac{4}{5} \\
 &= \frac{10}{5} + \frac{3}{5} + \frac{4}{5} = \frac{17}{5} \\
 &= 3 \frac{2}{5}
 \end{aligned}$$



$$\frac{17}{5} = 3 \frac{2}{5}$$

Or Fractions can be added together, and whole numbers can be added together.

$$2 + \frac{3}{5} + \frac{4}{5} = 2 \frac{7}{5} = 3 \frac{2}{5}$$

 $\frac{7}{5} = \frac{5}{5} + \frac{2}{5}$  •  $\frac{5}{5} = 1$ , so add 1 to the whole number to get 3.
Ex. Add:  $2 + 3 + \frac{5}{7} + \frac{4}{7}$ 

$$2 + 3 + \frac{5}{7} + \frac{4}{7} = 5 \frac{9}{7} = 6 \frac{2}{7}$$

$$\frac{7}{7} = 1$$

$$\frac{9}{7} = \frac{7}{7} + \frac{2}{7}$$

## 1 Complete the following addition problems:

a



$$2 + \frac{2}{3} + \frac{2}{3} = \frac{2}{3} + \frac{2}{3} = \frac{4}{3}$$

b



$$1 + 2 + \frac{2}{6} + \frac{2}{6} = 1 + 2 + \frac{2}{3} = 3 \frac{2}{3}$$

c

$$1 + 2 + \frac{3}{4} + \frac{3}{4} = 3 \frac{3}{4} = 3 \frac{2}{4}$$

d

$$2 + 2 + \frac{3}{6} + \frac{5}{6} = 4 \frac{8}{6} = 4 \frac{4}{3}$$

e

$$\frac{4}{7} + \frac{2}{7} + 1 + \frac{1}{7} = \frac{4}{7} + \frac{2}{7} + \frac{7}{7} + \frac{1}{7} = \frac{14}{7} = 2$$

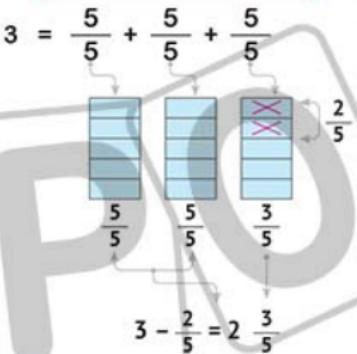
f

$$\frac{3}{9} + \frac{7}{9} + \frac{5}{9} + \frac{8}{9} = \frac{23}{9} = 2 \frac{5}{9}$$

## 2 Subtracting Fractions and Whole Numbers:

**Ex.** Subtract:  $3 - \frac{2}{5}$

## First: Using Models



## Second: Using Regrouping

$$3 - \frac{2}{5}$$

Borrow 1 from 3 and decompose it into  $\frac{5}{5}$

$$= 2 \frac{5}{5} - \frac{2}{5} = 2 \frac{3}{5}$$

**Ex.**

Subtract:

$$5 - \frac{7}{9} = 4 \frac{9}{9} - \frac{7}{9} = 4 \frac{2}{9}$$

$$1 = \frac{9}{9}$$

## 2 Complete the following:

a



$$5 - \frac{3}{4} = \underline{\hspace{2cm}}$$

b



$$7 - \frac{2}{5} = \underline{\hspace{2cm}}$$

c

$$4 - \frac{2}{3} = 3 \frac{3}{3} - \underline{\hspace{2cm}} =$$

$$7 - \frac{5}{8} = \underline{\hspace{2cm}}$$

e

$$5 - \frac{4}{9} = \underline{\hspace{2cm}}$$

$$8 - \frac{7}{10} = \underline{\hspace{2cm}}$$

## 3 Find the result of each of the following:

$$\text{a} \quad \left( \frac{2}{5} + \frac{2}{5} \right) - \frac{3}{5} = \underline{\hspace{2cm}}$$

$$\text{b} \quad \frac{3}{7} + \left( 1 - \frac{2}{7} \right) = \underline{\hspace{2cm}}$$

$$\text{c} \quad \left( 1 - \frac{5}{9} \right) - \frac{2}{9} = \underline{\hspace{2cm}}$$

$$\text{d} \quad \frac{3}{8} + \left( \frac{4}{8} + \frac{4}{8} \right) = \underline{\hspace{2cm}}$$

4 Nadia is preparing orange juice for her family. She needs  $\frac{3}{4}$  spoonful of sugar to make one cup of juice. How many spoonfuls of sugar will Nadia need to make 5 cups of juice?

5 Hossam has 3 loaves of bread. He uses  $\frac{3}{4}$  of a loaf to make a sandwich. How much bread is remaining?



10

1 Complete:

a  $3 + 1 + \frac{1}{5} + \frac{2}{5} =$

b  $5 - \frac{2}{5} =$

c  $\frac{1}{7} + \left( \frac{3}{7} + \frac{2}{7} \right) =$

d  $\frac{2}{8} + \frac{4}{8} + \frac{2}{8} =$

2 Choose the correct answer:

a  $\frac{35}{4} =$

(  $5 \frac{3}{4}$  or  $6 \frac{3}{4}$  or  $7 \frac{3}{4}$  or  $8 \frac{3}{4}$  )

b  $3 - \frac{3}{4} =$

(  $2 \frac{3}{4}$  or  $2 \frac{1}{4}$  or  $3 \frac{3}{4}$  or  $2 \frac{1}{4}$  )

c  $2 \frac{3}{5} =$

( 3 or 10 or 17 or 13 )

3 Answer the following:

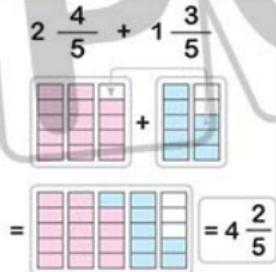
Hossam has 3 loaves of bread. He uses  $\frac{3}{5}$  of a loaf to make a sandwich. How much bread is remaining?

## Lesson 6

## Adding Mixed Numbers

**Ex.** Add:  $2\frac{4}{5} + 1\frac{3}{5}$

## First: Using Models



## Second: Using Regrouping

1 Fraction + Fraction

2 Whole Number + Whole Number

$$2\frac{4}{5} + 1\frac{3}{5} = 3\frac{7}{5}$$

$$= 4\frac{2}{5}$$

$\frac{7}{5}$  is an improper fraction.

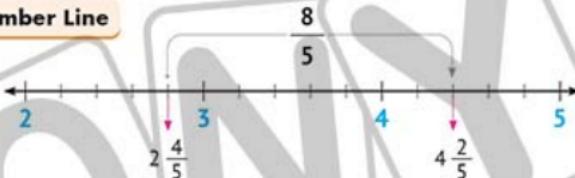
$$3\frac{7}{5} = 3 + \frac{5}{5} + \frac{2}{5} = 4\frac{2}{5}$$

One whole, add it to the whole number.

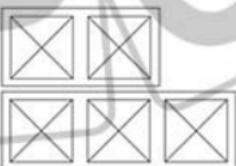
## Third: Using the Number Line

$$2\frac{4}{5} + 1\frac{3}{5}$$

$$= 2\frac{4}{5} + \frac{8}{5} = 4\frac{2}{5}$$



1 Add using the following models:



a  $1\frac{3}{4} + 2\frac{1}{4} =$  \_\_\_\_\_

b  $2\frac{3}{5} + 2\frac{4}{5} =$  \_\_\_\_\_

c)  $2 \frac{5}{6} + 1 \frac{3}{6} =$



2 Add using the following number lines:

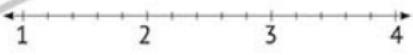
a)  $2 \frac{1}{3} + 1 \frac{1}{3} =$



b)  $3 \frac{3}{4} + \frac{3}{4} =$



c)  $1 \frac{2}{5} + 1 \frac{4}{5} =$



3 Add:

a)  $1 \frac{1}{5} + 2 \frac{2}{5} =$

b)  $4 \frac{3}{7} + 5 \frac{4}{7} =$

c)  $6 \frac{3}{8} + 2 \frac{5}{8} =$

d)  $6 \frac{3}{4} + 8 \frac{3}{4} =$

4 Hoda drank  $1 \frac{3}{8}$  liters of water. Azza drank  $1 \frac{5}{8}$  liters of water.

How many liters of water did Hoda and Azza drink altogether?

5 Ahmed has  $1 \frac{3}{4}$  kilograms of flour. Essam has  $2 \frac{1}{4}$  kilograms of flour, and Sameh has  $\frac{2}{4}$  kilograms of flour. What is the total mass of flour that they have?

# Quiz

10

## 1 Complete:

- $7 \frac{3}{5} + 2 \frac{1}{5} =$  \_\_\_\_\_
- $3 + 2 \frac{2}{7} =$  \_\_\_\_\_
- $5 \frac{2}{9} + 1 \frac{3}{9} =$  \_\_\_\_\_
- $2 \frac{1}{6} + \frac{3}{6} =$  \_\_\_\_\_
- $2 \frac{2}{3} + 1 \frac{2}{3} =$  \_\_\_\_\_

(Use the number line)



## 2 Answer the following:

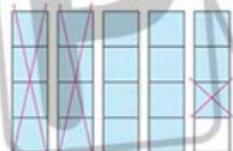
- If Murad saves  $2 \frac{1}{4}$  LE daily, then how much money will he get after 3 days?
- If the length of a rectangle is  $5 \frac{3}{4}$  cm and its width is  $2 \frac{1}{4}$  cm, find its perimeter.

Lesson  
7

## Subtracting Mixed Numbers

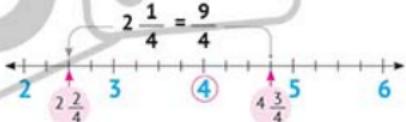
**Ex.** Subtract:  $4 \frac{3}{4} - 2 \frac{1}{4}$

## First: Using Models



$$4 \frac{3}{4} - 2 \frac{1}{4} = 2 \frac{2}{4}$$

## Second: Using the Number Line



$$4 \frac{3}{4} - 2 \frac{1}{4} = 2 \frac{2}{4}$$

## Third: Using Regrouping

## Subtract

① Fraction – Fraction

② Whole Number – Whole Number

**Ex.**  $4 \frac{3}{4} - 2 \frac{1}{4} = 2 \frac{2}{4}$

$$+ \frac{3}{3}$$

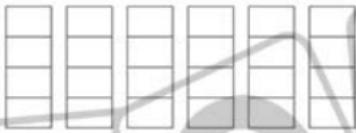
**Ex.**  $5 \frac{1}{3} - 3 \frac{2}{3} = 4 \frac{4}{3} - 3 \frac{2}{3} = 1 \frac{2}{3}$

We can't subtract  $\frac{1}{3}$  from  $\frac{2}{3}$ , so we borrow 1 from 5

$(1 = \frac{3}{3}$ , according to the denominator)

and add it to the fraction, so it becomes a mixed number.  $(\frac{1}{3} + \frac{3}{3} = \frac{4}{3})$

## 1 Subtract using the following models:

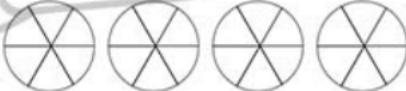


a  $5 \frac{3}{4} - 3 \frac{1}{4} =$  \_\_\_\_\_



b  $4 \frac{1}{5} - 3 \frac{4}{5} =$  \_\_\_\_\_

c  $3 \frac{2}{6} - 1 \frac{5}{6} =$  \_\_\_\_\_



## 2 Subtract using the following number lines:

a  $5 \frac{1}{2} - 3 \frac{1}{2} =$  \_\_\_\_\_



b  $3 \frac{1}{4} - 2 \frac{3}{4} =$  \_\_\_\_\_



c  $4 \frac{2}{5} - 2 \frac{4}{5} =$  \_\_\_\_\_



## 3 Subtract:

a  $5 - 2 \frac{1}{7} =$  \_\_\_\_\_

b  $4 \frac{3}{8} - 3 \frac{1}{8} =$  \_\_\_\_\_

c  $6 \frac{3}{7} - 1 \frac{2}{7} =$  \_\_\_\_\_

d  $9 \frac{3}{5} - 2 \frac{4}{5} =$  \_\_\_\_\_

4 Hoda has  $5 \frac{3}{8}$  of a cake. She gave  $3 \frac{5}{8}$  of the cake to her sister.

How much cake is left with Hoda?

5 Mohamed bought  $4\frac{1}{4}$  kilograms of meat to his family. His wife cooked  $1\frac{3}{4}$  of the meat for lunch and put the rest in the freezer.

How much meat is left in the freezer?

# Quiz

10

1 Complete:

a  $6\frac{1}{4} - 2\frac{3}{4} =$  .....

b  $7\frac{1}{7} - 5 =$  .....

c  $9\frac{1}{2} - 5\frac{1}{2} =$  .....

d  $7\frac{3}{8} - \underline{\quad} = 4\frac{6}{8}$

e  $\underline{\quad} - \underline{\quad} =$  .....

2 Answer the following:

a Ahmed has  $2\frac{5}{8}$  sandwiches; he gave his sister  $1\frac{7}{8}$ .

How much sandwich is left with Ahmed?



b Farida wants to buy a new toy. If she has  $7\frac{3}{5}$  LE and the toy is  $10\frac{2}{5}$ , how much money does Farida need to buy the toy?

# Unit

# 9

# Fractions

## Concept 9.2

### Comparing Fractions

#### Lesson 8

##### Comparing Fractions With Like Denominators or Numerators

###### Learning Objectives:

By the end of this lesson, the student will be able to:

- Compare and order fractions with like denominators.
- Compare and order fractions with like numerators.

#### Lesson 9

##### Same Fraction, Different Ways

###### Learning Objectives:

By the end of this lesson, the student will be able to:

- Use visual models to generate equivalent fractions.
- Explain what makes two fractions equivalent.

#### Lessons 10&11

##### Benchmark Fractions

###### Learning Objectives:

By the end of these lessons, the student will be able to:

- Identify benchmark fractions.
- Generate fractions equivalent to benchmark fractions.
- Compare fractions to a benchmark fraction.



Lesson  
8Comparing Fractions With Like Denominators  
or Numerators

## Comparing Fractions With

## Like Denominators

Ex.

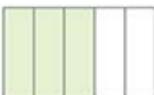


$$\frac{5}{8} > \frac{3}{8}$$

The fraction with the **greater** numerator is the **greatest**.

## Like Numerators

Ex.



$$\frac{3}{8} < \frac{3}{5}$$

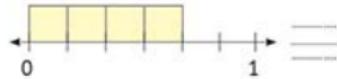
The fraction with the **greater** denominator is the **smallest**.

1 Write the fraction that represents the **shaded parts** of each of the following models and number lines, then compare using ( $<$ ,  $=$ , or  $>$ ):

a



c



b



2 Compare using ( $<$ ,  $=$ , or  $>$ ):

a  $\frac{1}{8}$    $\frac{3}{8}$

d  $\frac{5}{5}$    $\frac{3}{3}$

g  $\frac{2}{2}$    $\frac{2}{8}$

$\frac{3}{8}$

$\frac{3}{3}$

$\frac{2}{8}$

b  $\frac{2}{5}$    $\frac{2}{7}$

e  $1$    $\frac{4}{4}$

h  $\frac{5}{3}$    $\frac{5}{6}$

$\frac{2}{7}$

$\frac{4}{4}$

$\frac{5}{6}$

c  $\frac{3}{4}$    $\frac{1}{4}$

f  $\frac{5}{9}$    $\frac{5}{6}$

$\frac{1}{4}$

$\frac{3}{4}$

$\frac{5}{9}$

$\frac{5}{6}$

## Ordering Fractions

With like denominators:

Ex. Ascending order:  $\frac{1}{8} < \frac{2}{8} < \frac{3}{8} < \frac{4}{8} < \frac{5}{8} < \frac{6}{8} < \frac{7}{8}$ Descending order:  $\frac{7}{8} > \frac{6}{8} > \frac{5}{8} > \frac{4}{8} > \frac{3}{8} > \frac{2}{8} > \frac{1}{8}$ 

With like numerators:

Ex. Ascending order:  $\frac{1}{8} < \frac{1}{7} < \frac{1}{6} < \frac{1}{5} < \frac{1}{4} < \frac{1}{3} < \frac{1}{2}$ Descending order:  $\frac{1}{2} > \frac{1}{3} > \frac{1}{4} > \frac{1}{5} > \frac{1}{6} > \frac{1}{7} > \frac{1}{8}$ 

## 3 Arrange the following numbers in an ascending order:

a  $\frac{3}{4}, \frac{3}{7}, \frac{3}{9}, \frac{3}{5}$

Ascending order: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

b  $\frac{4}{7}, 1, \frac{5}{7}, \frac{2}{7}$

Ascending order: \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_, \_\_\_\_\_

4 Arrange the following numbers in a descending order:

a  $\frac{5}{6}, \frac{5}{7}, \frac{5}{12}, \frac{5}{9}$

Descending order:

b  $\frac{7}{8}, 1, \frac{1}{8}, \frac{3}{8}$

Descending order:



10

1 Compare using ( $<$ ,  $=$ , or  $>$ ):

a  $\frac{6}{8} \text{ ..... } \frac{2}{8}$

b  $1 \text{ ..... } \frac{9}{8}$

c  $\frac{1}{4} \text{ ..... } \frac{1}{10}$

d  $\frac{2}{5} \text{ ..... } \frac{2}{3}$

e  $\frac{7}{10} \text{ ..... } 1$

2 Arrange the following numbers in an ascending order:

a  $\frac{7}{2}, \frac{7}{9}, \frac{7}{11}, \frac{7}{4}$  • The order is: .....

b  $\frac{7}{9}, 1, \frac{2}{9}, \frac{8}{9}$  • The order is: .....

3 Arrange the following numbers in a descending order:

a  $\frac{3}{5}, \frac{1}{5}, \frac{7}{5}, \frac{5}{5}$  • The order is: .....

b  $\frac{5}{3}, 1, \frac{5}{9}, \frac{5}{8}$  • The order is: .....

Lesson  
9

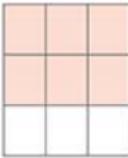
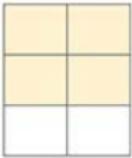
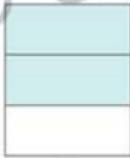
## Same Fraction, Different Ways

## First: Identifying Equivalent Fractions Using Models

**Equivalent Fractions:** They are fractions that have the **same** value.

Ex.

The fractions:  $\frac{2}{3}$ ,  $\frac{4}{6}$ ,  $\frac{6}{9}$



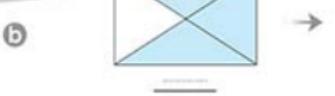
$$\frac{2}{3} = \frac{4}{6} = \frac{6}{9}$$

- They are **equivalent** (equal) fractions because they have the **same** value.

1 Write the fractions that represent the **shaded parts**, then shade the parts **equivalent** to them in the other shapes, and write the **equivalent fractions**:

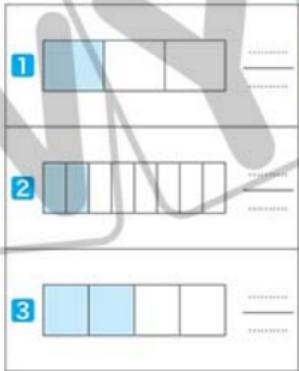
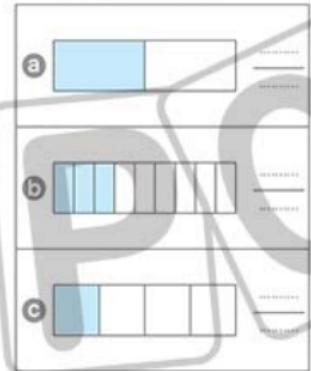


$$\frac{3}{6} = \frac{1}{2}$$



$$\frac{1}{4} = \frac{2}{8}$$

2 Write the fraction that represents the shaded parts. Then match the equivalent fractions:



### Remember

- Both the numerator and denominator can be multiplied or divided by the same number (except zero) to get equivalent fractions.

Ex.

$$\frac{3}{5} = \frac{12}{20}$$

$\times 4$

$\times 4$

$$\frac{12}{16} = \frac{3}{4}$$

$\div 4$

$\div 4$

3 Complete:

a  $\frac{3}{\text{ }} = \frac{9}{12}$

b  $\frac{6}{5} = \frac{\text{ }}{15}$

c  $\frac{3}{4} = \frac{\text{ }}{8}$

d  $\frac{12}{18} = \frac{2}{\text{ }}$

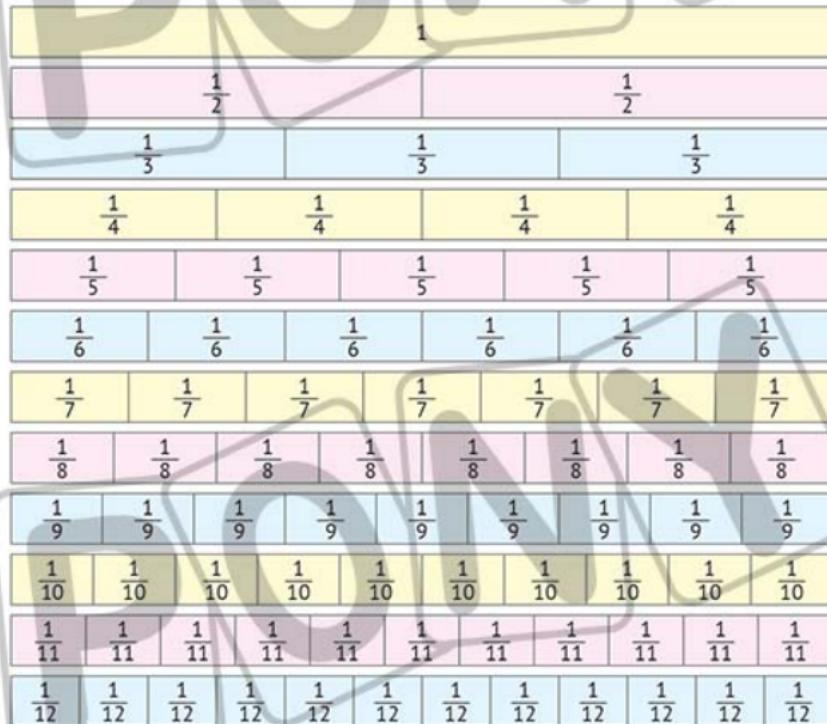
e  $\frac{24}{\text{ }} = \frac{8}{9}$

f  $\frac{15}{\text{ }} = \frac{3}{5}$

## Second: Identifying Equivalent Fractions Using the Fraction Wall

Theme 3

**Fraction Wall:** It is a model that explains the relationship between **unit fractions**, and it is used to compare fractions and find equivalent fractions.



- The fraction wall can be used to find equivalent fractions and compare them.

One whole:

$$\frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \frac{6}{6} = \frac{7}{7} = 1$$

$\frac{1}{2}$				$\frac{1}{2}$			
$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$	
$\frac{1}{6}$							
$\frac{1}{8}$							
$\frac{1}{10}$							
$\frac{1}{12}$							

$$\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \frac{6}{12}$$

$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$
$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

$$\frac{1}{3} = \frac{2}{6} = \frac{3}{9} = \frac{4}{12} \quad \frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12}$$

$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$	$\frac{1}{4}$
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

$$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} \quad \frac{2}{4} = \frac{4}{8} = \frac{6}{12} \quad \frac{3}{4} = \frac{6}{8} = \frac{9}{12}$$

$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$	$\frac{1}{5}$
$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$

$$\frac{1}{5} = \frac{2}{10} \quad \frac{2}{5} = \frac{4}{10} \quad \frac{3}{5} = \frac{6}{10} \quad \frac{4}{5} = \frac{8}{10}$$

$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

$$\frac{1}{6} = \frac{2}{12} \quad \frac{2}{6} = \frac{4}{12} \quad \frac{3}{6} = \frac{6}{12} \quad \frac{4}{6} = \frac{8}{12} \quad \frac{5}{6} = \frac{10}{12}$$

#### 4 Complete using the fraction wall:

a)  $\frac{1}{4} = \frac{2}{\text{.....}} = \frac{3}{\text{.....}}$

b)  $\frac{1}{2} = \frac{\text{.....}}{4} = \frac{\text{.....}}{6} = \frac{\text{.....}}{8} = \frac{\text{.....}}{10} = \frac{\text{.....}}{12}$

c)  $\frac{1}{3} = \frac{\text{.....}}{9}$

d)  $\frac{2}{5} = \frac{\text{.....}}{10}$

## 5 Put (&lt;, =, or &gt;) using the fraction wall:

a  $\frac{2}{6}$    $\frac{3}{9}$

b  $\frac{1}{8}$    $\frac{1}{5}$

c  $\frac{2}{3}$    $\frac{8}{12}$

d  $\frac{3}{4}$    $\frac{5}{12}$

e  $\frac{1}{2}$    $\frac{2}{4}$

f  $\frac{4}{9}$    $\frac{3}{6}$

## 6 Write two equivalent fractions using the fraction wall:

a  $\frac{2}{6} = \frac{\text{...}}{\text{...}} = \frac{\text{...}}{\text{...}}$

b  $\frac{6}{8} = \frac{\text{...}}{\text{...}} = \frac{\text{...}}{\text{...}}$

c  $\frac{2}{3} = \frac{\text{...}}{\text{...}} = \frac{\text{...}}{\text{...}}$

d  $\frac{1}{2} = \frac{\text{...}}{\text{...}} = \frac{\text{...}}{\text{...}}$

## 7 Find the equivalent fractions using the following number lines:

a  $\frac{\text{...}}{\text{...}} = \frac{\text{...}}{\text{...}}$



b  $\frac{\text{...}}{\text{...}} = \frac{\text{...}}{\text{...}} = \frac{\text{...}}{\text{...}}$

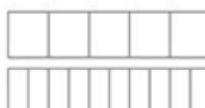


c  $\frac{\text{...}}{\text{...}} = \frac{\text{...}}{\text{...}}$



8 Kamal and Maha have two cakes of the same size. Kamal ate  $\frac{3}{5}$  of his cake, and Maha ate an equivalent amount to what Kamal ate.

Draw a model representing the parts eaten by each of them, where Maha's cake is divided into 10 parts.



9 Hossam and Sameh each bought a large pizza for dinner.

Hossam cut his pizza into 6 equal parts; he ate two of these parts. If Sameh cut his pizza into nine parts and he wants to eat the same amount as Hossam, how many parts will Sameh have to eat?



a The fraction representing what Hossam ate is  $\frac{\text{.....}}{\text{.....}}$ .

b The fraction representing what Sameh ate is  $\frac{\text{.....}}{\text{.....}}$ .

c The number of pieces that Sameh has to eat is  $\text{.....}$ .

10 Ahmed has 3 crayons. One of them is red, and the rest are blue. Hazem has 9 crayons, and he wants the same part of his set to be red as Ahmed's set. How many crayons have to be red in Hazem's set? Write the equivalent fraction.

a The fraction representing the red crayons in Ahmed's set is  $\frac{\text{.....}}{\text{.....}} = \frac{\text{.....}}{9}$ .

b The fraction representing the red crayons in Hazem's set is  $\frac{\text{.....}}{\text{.....}}$ .

c The number of crayons that have to be red in Hazem's set is  $\text{.....}$ .

## Third: Equivalent Mixed Numbers and Improper Fractions

Theme 3

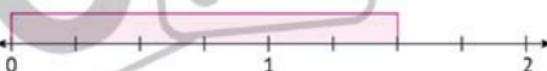
Ex.

The mixed numbers equivalent to the fractions:  $\frac{3}{2}$ ,  $\frac{6}{4}$ ,  $\frac{9}{6}$ .

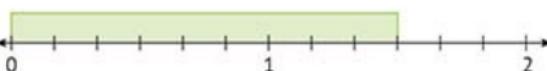
a  $\frac{3}{2} = 1 \frac{1}{2}$



b  $\frac{6}{4} = 1 \frac{2}{4}$



c  $\frac{9}{6} = 1 \frac{3}{6}$



They are **equivalent** (equal) fractions because they have the **same value** and are located at the **same point** on the number line.

$$\frac{3}{2} = \frac{6}{4} = \frac{9}{6}$$

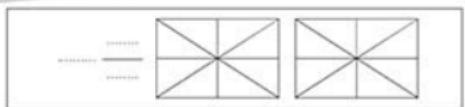
$$1 \frac{1}{2} = 1 \frac{2}{4} = 1 \frac{3}{6}$$

11 Write the mixed numbers that represent the **shaded parts**, then shade the parts that are **equal** to them in the other shapes:

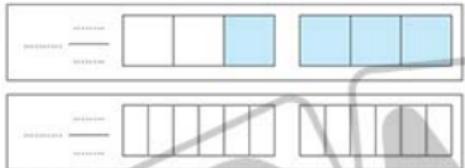
a



$$\frac{3}{6} = \frac{1}{2}$$



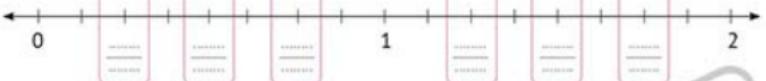
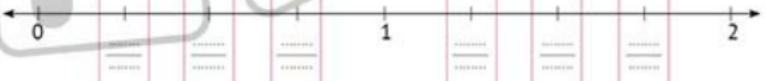
b



9

Unit

12 Find the equivalent fractions using the number lines below:



a

b

c

d

e

f

$$\frac{1}{3} = \frac{\square}{6}$$

$$\frac{2}{3} = \frac{\square}{6}$$

$$\frac{2}{3} = \frac{\square}{9}$$

$$\frac{1}{3} = \frac{\square}{9}$$

$$\frac{2}{3} = \frac{\square}{9}$$

$$\frac{1}{3} = \frac{\square}{12}$$

$$\frac{2}{3} = \frac{\square}{12}$$

$$\frac{2}{3} = \frac{\square}{18}$$

$$\frac{1}{3} = \frac{\square}{24}$$

$$\frac{2}{3} = \frac{\square}{24}$$

$$\frac{2}{3} = \frac{\square}{36}$$

Or

Or

Or

## 13 Complete:

a  $1 \frac{2}{\dots} = 1 \frac{4}{6}$

b

$\frac{\dots}{3} = \frac{35}{15}$

c

$4 \frac{1}{4} = \frac{\dots}{8}$

d  $\frac{21}{5} = \frac{1}{\dots}$

e

$\frac{6}{9} = 2 \frac{\dots}{3}$

f

$\frac{3}{5} = \frac{\dots}{15}$



10

## 1 Complete:

a  $\frac{3}{5} = \frac{6}{\dots}$

b  $\frac{7}{9} = \frac{\dots}{18}$

c  $4 \frac{1}{2} = 4 \frac{6}{\dots}$

d  $\frac{2}{3} = \frac{6}{\dots} = \frac{8}{18} = \frac{8}{\dots}$

e  $\frac{\dots}{15} = \frac{3}{5}$

2 Write **two equivalent fractions** for each of following:

a  $\frac{3}{5} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

b  $\frac{1}{7} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

c  $\frac{2}{9} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

d  $\frac{\dots}{\dots} = \frac{\dots}{\dots} = \frac{20}{30}$

e  $2 \frac{2}{7} = \frac{\dots}{\dots} = \frac{\dots}{\dots}$

# Lessons 10&11

## Benchmark Fractions

### Benchmark Fractions

- They are fractions that are widespread and useful. They can help us in comparing fractions.

Ex.  $\frac{1}{4}, \frac{1}{3}, \frac{1}{2}, 0, 1, 1\frac{1}{2}, \dots$  etc.

- Usage of Benchmark Fractions:

There is a relationship between the numerator and the denominator of the benchmark fraction that can help us find the equivalent fractions to the benchmark fraction.

### Fractions that are equivalent to a half:

Numerator = half the denominator



Denominator = double the numerator

- All fractions that are equivalent to benchmark fractions have a numerator that is half the denominator.

Ex.  $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10} = \dots$  etc.



#### Important

#### Note:

- Any whole number can be written as an improper fraction with 1 as the denominator.

Ex.  $2 = \frac{2}{1}$

$3 = \frac{3}{1}$

$4 = \frac{4}{1}$

$8 = \frac{8}{1}$

$6 = \frac{6}{1}$

## Fractions equivalent to benchmark fractions:

- Note the following:

$$\frac{1}{2} = \frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \frac{4}{8} = \frac{5}{10}$$

$$1 = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \frac{6}{6} = \frac{7}{7} = \frac{8}{8} = \frac{9}{9} = \frac{10}{10}$$

$$1\frac{1}{2} = 1\frac{1}{2} = 1\frac{2}{4} = 1\frac{3}{6} = 1\frac{4}{8} = 1\frac{5}{10}$$

$$2 = \frac{4}{2} = \frac{6}{3} = \frac{8}{4} = \frac{10}{5} = \frac{12}{6} = \frac{14}{7} = \frac{16}{8} = \frac{18}{9} = \frac{20}{10}$$

1 Match the following fractions to the benchmark fractions:

(You can match more than one fraction to one benchmark fraction.)

$$\frac{3}{3}$$

$$\frac{12}{8}$$

$$\frac{2}{4}$$

$$\frac{6}{4}$$

$$\frac{5}{5}$$

$$\frac{2}{6}$$

$$a \quad 1\frac{1}{2}$$

$$b \quad 1$$

$$c \quad \frac{1}{3}$$

$$d \quad \frac{1}{2}$$



## Notes:

- In the following number line:

When placing fractions on a number line, the fractions closest to 0,  $\frac{1}{2}$  or 1 can be determined, as follows:



Closer to 0

All fractions less than  $\frac{1}{4}$  are closer to 0.

Closer to  $\frac{1}{2}$ 

All fractions less than  $\frac{3}{4}$  and equal to or greater than  $\frac{1}{4}$  are closer to  $\frac{1}{2}$ .

Closer to 1

All fractions equal to or greater than  $\frac{3}{4}$  are closer to 1.

2 Put each of the following fractions in its position on the number line. Then decide if the fraction is closer to 0,  $\frac{1}{2}$  or 1:

Fraction	Number Line	The fraction is closer to
a $\frac{1}{6}$	0 - - - - - 1	0 $\frac{1}{2}$ 1
b $\frac{5}{8}$	0 - - - - - 1	0 $\frac{1}{2}$ 1
c $\frac{9}{10}$	0 - - - - - 1	0 $\frac{1}{2}$ 1

### Comparing Fractions Using Benchmark Fractions

Ex. Compare  $\frac{7}{8}$  and  $\frac{5}{10}$ .

- By comparing each fraction to the unit fraction  $\frac{1}{2}$ .
- We find that:  $\frac{7}{8} > \frac{1}{2}$  ,  $\frac{5}{10} = \frac{1}{2}$
- So, we can deduce that:  $\frac{7}{8} > \frac{5}{10}$

3 Each of Rashed and Malek has a cake of the same size. Rashed ate  $\frac{4}{6}$  of his cake, and Malek ate  $\frac{5}{10}$  of his cake. Who ate more?

Complete:  $\frac{1}{2} = \frac{\square}{6} \rightarrow \frac{1}{2} \square \frac{4}{6}$

$\frac{1}{2} = \frac{\square}{10} \rightarrow \frac{1}{2} \square \frac{5}{10}$

So,  $\frac{4}{6} \square \frac{5}{10}$

• ..... ate more.

4 Each of Mariam and Jana has 2 sandwiches that are equal in size. Jana ate  $\frac{5}{12}$  of her 2 sandwiches, and Mariam ate  $\frac{4}{6}$  of her 2 sandwiches. Who ate more?

Complete:  $\frac{1}{2} = \frac{\square}{12} \rightarrow \frac{1}{2} \quad \frac{5}{12}$

$\frac{1}{2} = \frac{\square}{6} \rightarrow \frac{1}{2} \quad \frac{4}{6}$

So,  $\frac{5}{12} \quad \frac{4}{6}$  ate more.

**Ex.** Use the special values 0,  $\frac{1}{2}$ , and 1 to arrange the following fractions in an ascending order:  $\frac{2}{10}$ ,  $\frac{6}{8}$ ,  $\frac{3}{6}$

**Solution:**  $\frac{2}{10} < \frac{1}{2} \left( \frac{5}{10} \right)$      $\frac{6}{8} > \frac{1}{2} \left( \frac{4}{8} \right)$      $\frac{3}{6} = \frac{1}{2}$

• Ascending order:  $\frac{2}{10} < \frac{3}{6} < \frac{6}{8}$

5 a) Arrange from the least to the greatest:  $\frac{3}{4}$ ,  $\frac{1}{6}$ ,  $\frac{5}{10}$

$\frac{3}{4} \quad \frac{1}{2} \left( \frac{\square}{\square} \right) \quad \frac{1}{6} \quad \frac{1}{2} \left( \frac{\square}{\square} \right) \quad \frac{5}{10} \quad \frac{1}{2} \left( \frac{\square}{\square} \right)$

b) Arrange from the greatest to the least:  $\frac{5}{6}$ ,  $\frac{9}{9}$ ,  $\frac{1}{4}$

$\frac{5}{6} \quad \frac{1}{2} \left( \frac{\square}{\square} \right) \quad \frac{9}{9} = \quad \frac{1}{4} \quad \frac{1}{2} \left( \frac{\square}{\square} \right)$

6 Amir ate  $\frac{3}{10}$  of his cake. Sara ate  $\frac{5}{8}$  of her cake of the same type and size as Amir's. Who ate more than  $\frac{1}{2}$ ? Show your steps below.

• Amir ate  $\frac{3}{10}$    $\frac{1}{2} (\frac{1}{10})$ , • Sara ate  $\frac{5}{8}$    $\frac{1}{2} (\frac{5}{8})$

So,  $\frac{3}{10}$    $\frac{5}{8}$

• ..... ate more than  $\frac{1}{2}$  of the cake.

7 Kamal bought 2 pizzas of the same type and size for a party. He cut each pizza into 8 equal pieces. By the end of the party, 2 pieces were left. Did his guests eat more or less than  $\frac{1}{2}$  of the pizzas? Show your steps below.

• 2 Pizzas =  $\frac{16}{8}$

• What his guests ate is  $\frac{8}{8} = \dots = \boxed{\phantom{0}} 1 \frac{1}{2}$



10

1 Arrange the following fractions in an ascending order:

$$\frac{3}{5}, \frac{1}{8}, \frac{6}{7}$$

• The order is: , , ,

2 Arrange the following fractions in a descending order:

$$\frac{2}{10}, \frac{7}{9}, \frac{4}{7}$$

• The order is: , , ,

3 Match the following fractions to the closest benchmark fraction:

(You can match more than one fraction to one benchmark fraction.)

$$\frac{3}{7}$$

$$\frac{1}{9}$$

$$\frac{1}{10}$$

$$\frac{7}{9}$$

$$\frac{5}{9}$$

$$\frac{11}{12}$$

a

1

b

$\frac{1}{2}$

c

0

# Unit

# 9

# Fractions

## Concept 9.3

### Multiplication and Fractions

Lessons

12-14

Equivalent Fractions Using the Identity Property, Multiplication and Division  
Finding the Missing in Equivalent Fractions

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Use the Identity Property of Multiplication to create equivalent fractions.
- Multiply and divide to create equivalent fractions.
- Explain the relationship between multiples and equivalent fractions.

Lesson

15

### Multiplying by a Whole

#### Learning Objective:

By the end of this lesson, the student will be able to:

- Multiply a fraction by a whole number.



# Equivalent Fractions Using the Identity Property, Multiplication and Division

## Finding the Missing in Equivalent Fractions

### 1 Finding Equivalent Fractions Using the Identity Property:

- The Identity Property of Multiplication → Any number  $\times 1$  = the same number
- The Multiplicative Identity Element →  $1$

$$1 = \frac{2}{2} = \frac{3}{3} = \frac{4}{4} = \frac{5}{5} = \frac{6}{6} = \frac{7}{7} = \frac{8}{8} = \frac{9}{9} \dots$$

The Identity Property of Multiplication can be used to find equivalent fractions by multiplying the fraction by a fraction equivalent to one (Identity Element).

$$\begin{array}{rcl}
 \frac{2}{3} \times 1 & = & \frac{2}{3} \\
 \frac{2}{3} \times \frac{2}{2} & = & \frac{4}{6} \quad \rightarrow \quad \frac{2}{3} = \frac{4}{6} \\
 \frac{2}{3} \times \frac{3}{3} & = & \frac{6}{9} \quad \rightarrow \quad \frac{2}{3} = \frac{6}{9} \\
 \frac{2}{3} \times \frac{4}{4} & = & \frac{8}{12} \quad \rightarrow \quad \frac{2}{3} = \frac{8}{12}
 \end{array}$$

### 1 Multiply: (Do not simplify the fractions)

a)  $\frac{3}{4} \times \frac{3}{3} = \underline{\quad}$

b)  $\frac{3}{5} \times \frac{4}{4} = \underline{\quad}$

c)  $\frac{1}{8} \times \frac{5}{5} = \underline{\quad}$

d)  $\frac{4}{7} \times \frac{6}{6} = \underline{\quad}$

e)  $\frac{2}{6} \times \frac{8}{8} = \underline{\quad}$

f)  $\frac{3}{8} \times \frac{2}{2} = \underline{\quad}$

## 2 Complete:

a  $\frac{1}{3} X \underline{\quad} = \frac{4}{12}$

b  $\frac{3}{4} X \underline{\quad} = \frac{18}{24}$

c  $\frac{2}{5} X \underline{\quad} = \frac{10}{25}$

d  $\frac{6}{7} X \underline{\quad} = \frac{18}{21}$

e  $\underline{\quad} X \frac{3}{3} = \frac{15}{18}$

f  $\underline{\quad} X \frac{2}{2} = \frac{6}{10}$

g  $\underline{\quad} X \frac{7}{7} = \frac{14}{49}$

h  $\underline{\quad} X \frac{5}{5} = \frac{35}{45}$

i  $\frac{2}{5} X \underline{\quad} = \frac{4}{14}$

## 2 Finding Equivalent Fractions Using Multiplication and Division:

- Both the numerator and denominator can be **multiplied** or **divided** by the **same number** to get **equivalent fractions**.

Ex.

$$\frac{3}{5} \underset{\times 4}{=} \frac{12}{20}$$

$$\frac{2}{3} \underset{\times 5}{=} \frac{10}{15}$$

$$\frac{12}{16} \underset{\div 4}{=} \frac{3}{4}$$

$$\frac{6}{24} \underset{\div 6}{=} \frac{1}{4}$$

3 Write an **equivalent fraction** for each fraction:

$$\text{a } \frac{1}{2} = \underline{\quad}$$

$$\text{b } \frac{1}{4} = \underline{\quad}$$

$$\text{c } \frac{2}{3} = \underline{\quad}$$

$$\text{d } \frac{8}{12} = \underline{\quad}$$

$$\text{e } \frac{5}{10} = \underline{\quad}$$

$$\text{f } \frac{15}{20} = \underline{\quad}$$

4 Complete:

a  $\frac{3}{4} = \frac{18}{\dots\dots}$

b  $\frac{1}{2} = \frac{\dots\dots}{10}$

c  $\frac{4}{\dots\dots} = \frac{12}{15}$

d  $\frac{\dots\dots}{5} = \frac{6}{15}$

e  $\frac{20}{25} = \frac{\dots\dots}{5}$

f  $\frac{14}{21} = \frac{2}{\dots\dots}$

g  $\frac{24}{\dots\dots} = \frac{8}{9}$

h  $\frac{\dots\dots}{30} = \frac{3}{5}$

i  $\frac{32}{\dots\dots} = \frac{4}{7}$

5 Omar made "Om Ali" and divided it into 12 equal bowls. Omar shared three of them with his friend Mohamed. What is the simplest form of the amount that Omar shared with his friend?

$\frac{\dots\dots}{\dots\dots} = \frac{\dots\dots}{\dots\dots}$

6 Heba has 2 cakes of the same size. She cut the first one into 6 pieces, and she put blue icing on 2 pieces. Then, she cut the second cake into 18 pieces. If she wants to put blue icing on a part of the second cake where the icing is equal to the icing of the 2 pieces of the first cake, how many pieces does she have to put icing on?

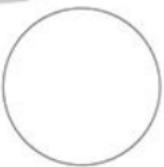
Draw a model and write the equivalent fractions representing your answer.

First Cake



Second Cake

$\frac{\dots\dots}{\dots\dots} = \frac{\dots\dots}{\dots\dots}$



• The number of pieces = ..... pieces.

7 Nabil has 9 cakes;  $\frac{2}{3}$  of them contain chocolate chips.

How many cakes don't contain chocolate chips?

•  $\frac{2}{3} = \dots$

• Number of cakes = .....



10

1 Complete:

a  $\frac{27}{38} \times 0 = \dots$

b  $\frac{3}{7} \times \frac{1}{2} = \dots$

c  $\frac{5}{8} \times 1 = \dots$

d  $\frac{3}{\dots} \times \frac{5}{6} = \frac{15}{30} \times \frac{\dots}{2}$

e  $\frac{18}{24} = \dots$  (In the simplest form)

2 Write the following fractions in the **simplest form**:

a  $\frac{7}{21} = \dots$

b  $\frac{36}{54} = \dots$

c  $\frac{8}{48} = \dots$

3 Answer the following:

Murad has 8 balls;  $\frac{1}{4}$  of them are yellow. How many yellow balls are there?

# Lesson 15

## Multiplying by a Whole

### Methods of Expressing a Fraction

#### Models

$$\frac{4}{6} = \frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{6} \quad \frac{1}{6}$$

#### Addition Process

$$\frac{4}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$$

#### Multiplication Process

$$\frac{4}{6} = 4 \times \frac{1}{6}$$

1 Draw a **bar model** and write an **addition process** and a **multiplication process** for each fraction, as in the example:

Fraction	Bar Model	Addition Process	Multiplication Process
Ex. $\frac{3}{5}$		$\frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{3}{5}$	$3 \times \frac{1}{5} = \frac{3}{5}$
a $\frac{4}{6}$	<input type="text"/>		
b $\frac{3}{8}$	<input type="text"/>		
c $\frac{4}{9}$	<input type="text"/>		
d $\frac{2}{4}$	<input type="text"/>		

## Multiplying a Fraction by a Whole Number

## Using Repeated Addition

Ex.

$$3 \times \frac{1}{5} = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{3}{5}$$



Important

Note:

- The product of multiplying a **whole number** by a **fraction** is **greater than** the fraction and **less than** the whole number.

## Using Multiplication

- Multiply the whole number by the numerator, and the denominator remains unchanged.

Ex.

$$3 \times \frac{1}{5} = \frac{3}{5}$$

## 2 Multiply:

a  $\frac{1}{3} \times 2 = \dots$

b  $\frac{1}{5} \times 5 = \dots$

c  $\frac{2}{9} \times 2 = \dots$

d  $\frac{1}{5} \times 4 = \dots$

e  $\frac{1}{4} \times 3 = \dots$

f  $\frac{3}{10} \times 3 = \dots$

## 3 Multiply:

a  $\frac{1}{2} \times 3 = \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = \dots$

b  $\frac{1}{4} \times \dots = \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \dots$

c  $\frac{1}{3} \times \dots = \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \dots$

d  $\frac{1}{5} \times \dots = \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \frac{4}{5}$

4 Marwa drinks  $\frac{1}{9}$  of a bottle of milk every day. How much milk does Marwa drink in 5 days? Write your answer as the total unit fractions and an equivalent multiplication process.

• Total unit fractions: \_\_\_\_\_

Amount of Milk

• Multiplication process: \_\_\_\_\_

5 There are 7 children in a birthday party. If each child ate  $\frac{2}{18}$  of a pizza, how many pizza pieces did the children eat?

Write your answer as the total unit fractions and an equivalent multiplication process.

• Total unit fractions: \_\_\_\_\_

Number of Pizza Pieces

• Multiplication process: \_\_\_\_\_

1 Complete:

a  $\frac{7}{8} \times 3 =$  \_\_\_\_\_

b  $\frac{4}{5} \times 5 =$  \_\_\_\_\_

c  $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} =$  \_\_\_\_\_

d  $4 \times \frac{1}{2} =$  \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ = \_\_\_\_\_

e  $\frac{2}{5} \times \frac{5}{5} = 1$  \_\_\_\_\_

10

# Quiz

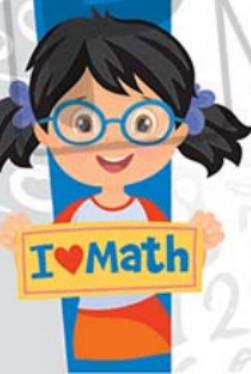
3 Answer the following:

Farida saves  $\frac{2}{3}$  pound daily. How much money will she save after a week?

# Unit

## 10

# Decimals



## Concept

### 10.1

## Understanding Decimals

#### Lessons

1 & 2

#### Let's Explore Decimals Hundredths

##### Learning Objectives:

By the end of these lessons, the student will be able to:

- Define decimal fractions.
- Create visual models of Tenths.
- Create visual models of Hundredths.

#### Lessons

3 & 4

#### The Place Value Decimals in Different Forms

##### Learning Objectives:

By the end of these lessons, the student will be able to:

- Name the place value of decimals to the Hundredths place.
- Identify the value of a digit to the Hundredths place.
- Write decimals to the Hundredths place in standard, word, unit and expanded forms.



# Lessons 1&2

## Let's Explore Decimals Hundredths

### Decimals

- We can express mixed numbers that contain fractions with denominators of 10 or powers of (10) using the **decimal point**, where:

#### Whole Number

is written to the **left** of the decimal point.

#### Numerator

is written to the **right** of the decimal point.

### Ex.

$$2 \frac{6}{10}$$

↓

$$2.6$$

Decimal Point

$$15 \frac{1}{10}$$

↓

$$15.1$$

If the denominator is 10, then there is one **digit** to the **right** of the decimal point.

$$4 \frac{45}{100}$$

↓

$$4.45$$

$$25 \frac{17}{100}$$

↓

$$25.17$$

If the denominator is 100, then there is two **digit** to the **right** of the decimal point.

$$8 \frac{3}{100}$$

↓

$$8.03$$

$$374 \frac{9}{100}$$

↓

$$374.09$$

If the numerator is **one digit**, we put **zero** to the **left** of it.

## Important

## Note:

- When we write the fractions as decimals, we put **0** in the place of the whole number.

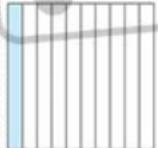
$$\frac{1}{10} = 0.1$$

$$\frac{17}{100} = 0.17$$

$$\frac{9}{100} = 0.09$$

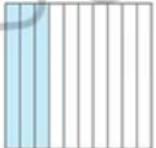
## Representing Decimals

- The following models represent decimals, where the whole one is divided into **10** equal parts.



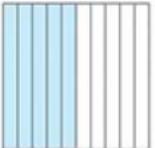
$$\frac{1}{10} = 0.1$$

One-tenth



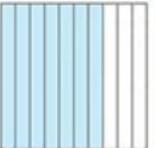
$$\frac{3}{10} = 0.3$$

Three-tenths



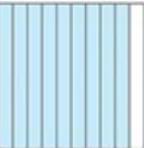
$$\frac{5}{10} = 0.5$$

Five-tenths



$$\frac{7}{10} = 0.7$$

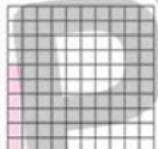
Seven-tenths



$$\frac{9}{10} = 0.9$$

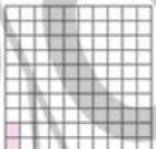
Nine-tenths

- The following models represent decimals, where the whole one is divided into **100** equal parts.



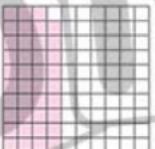
$$\frac{6}{100} = 0.06$$

Six-hundredths



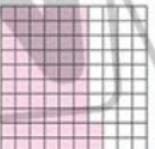
$$\frac{2}{100} = 0.02$$

Two-hundredths



$$\frac{39}{100} = 0.39$$

Thirty-nine hundredths



$$\frac{62}{100} = 0.62$$

Sixty-two hundredths

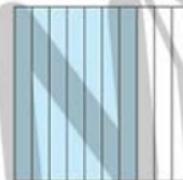
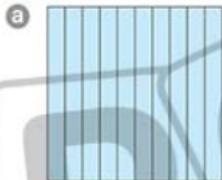


$$\frac{85}{100} = 0.85$$

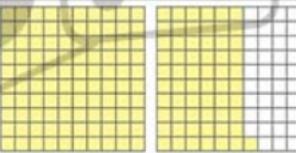
Eighty-five hundredths

The following models represent decimals:

Ex.



$$2 \frac{7}{10} = 2.7$$



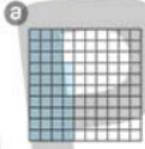
$$3 \frac{61}{100} = 3.61$$



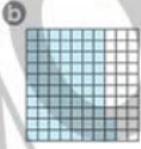
**Important Note:**

- The whole one (1) =  $\frac{10}{10}$  (ten-tenths) =  $\frac{100}{100}$  (hundred-hundredths).
- $0.1 = \frac{1}{10} = \frac{10}{100}$  So, 0.10 doesn't represent the whole one.
- $\frac{1}{10} \neq \frac{1}{100}$  So, 0.1 ≠ 0.01, 0.2 ≠ 0.02, 0.3 ≠ 0.03, ....

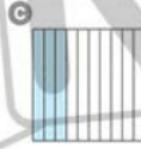
1 Write the fractions and decimals that represent the shaded parts of each of the following:



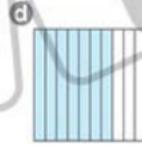
$$\frac{\text{.....}}{\text{.....}} = \text{.....}$$



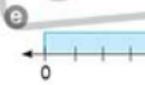
$$\frac{\text{.....}}{\text{.....}} = \text{.....}$$



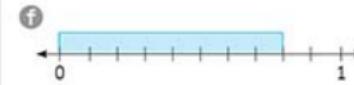
$$\frac{\text{.....}}{\text{.....}} = \text{.....}$$



$$\frac{\text{.....}}{\text{.....}} = \text{.....}$$



$$\frac{\text{.....}}{\text{.....}} = \text{.....}$$



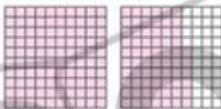
$$\frac{\text{.....}}{\text{.....}} = \text{.....}$$

Fractions, Decimals, and Proportional Relationships

Theme 3

2 Write the **mixed numbers** and **decimals** that represent the following models:

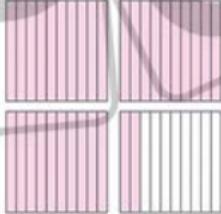
a



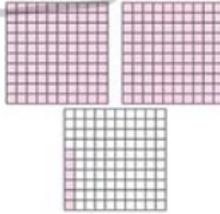
b



c



d



3 Shade the following **models** to represent the **decimals**:

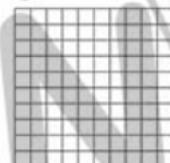
a



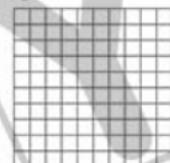
b



c



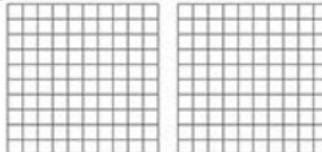
d



e



f



## 4 Write each of the following as a decimal:

a  $\frac{3}{10} =$  \_\_\_\_\_

b  $\frac{8}{100} =$  \_\_\_\_\_

c  $\frac{37}{100} =$  \_\_\_\_\_

d  $7 \frac{2}{10} =$  \_\_\_\_\_

e  $82 \frac{6}{10} =$  \_\_\_\_\_

f  $274 \frac{9}{10} =$  \_\_\_\_\_

g  $8 \frac{5}{100} =$  \_\_\_\_\_

h  $2 \frac{86}{100} =$  \_\_\_\_\_

i  $102 \frac{6}{100} =$  \_\_\_\_\_

## 5 Write each of the following as a fraction or a mixed number:

a  $0.8 =$  \_\_\_\_\_

b  $0.02 =$  \_\_\_\_\_

c  $0.77 =$  \_\_\_\_\_

d  $3.5 =$  \_\_\_\_\_

e  $25.9 =$  \_\_\_\_\_

f  $4.05 =$  \_\_\_\_\_

g  $6.12 =$  \_\_\_\_\_

h  $14.36 =$  \_\_\_\_\_

i  $241.47 =$  \_\_\_\_\_



10

## 1 Choose the correct answer:

a Five-tenths = \_\_\_\_\_

(5.0 or 10.5 or 0.5 or 0.05)

b  $\frac{3}{10} =$  \_\_\_\_\_

(0.3 or 3.0 or 10.3 or 3.10)

c  $0.04 =$  \_\_\_\_\_

 $(\frac{4}{100} \text{ or } \frac{4}{100} \text{ or } \frac{40}{100} \text{ or } \frac{40}{100})$ 

d  $2.6 =$  \_\_\_\_\_

 $(\frac{26}{100} \text{ or } 2 \frac{6}{100} \text{ or } 2 \frac{6}{10} \text{ or } 6 \frac{2}{10})$ 

e  $\frac{79}{100} =$  \_\_\_\_\_

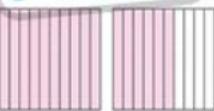
(7.9 or 0.79 or 9.07 or 7.09)

f  $0.8 =$  \_\_\_\_\_

(Eight-tenths or Eighty or Eight-hundredths or Eight)

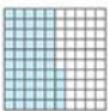
## 2 Write the fraction and decimal for the shaded part:

a



= \_\_\_\_\_

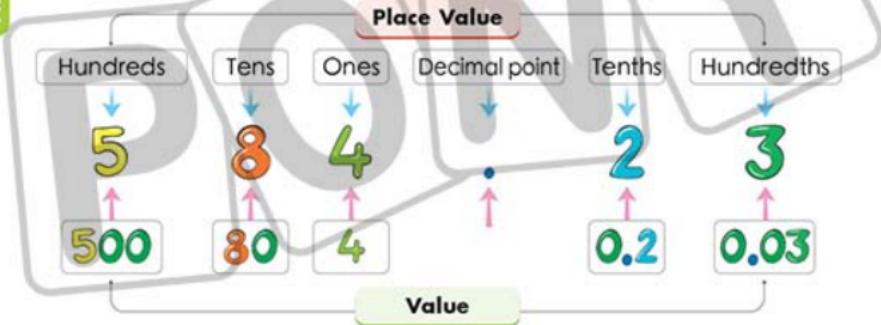
b



= \_\_\_\_\_

Lessons  
3&4

Theme 3

The Place Value  
Decimals in Different Forms

1 Complete the following table:

Number	Place Value of the Encircled Digit	Value of the Encircled Digit
Ex. 31.5	Tenths	0.5
a. 4.56		
b. 21.23		
c. 2.73		
d. 5.03		

2 Complete:

- The place value of the digit 3 in 0.36 is \_\_\_\_\_.
- The place value of the digit 2 in 2.83 is \_\_\_\_\_.
- The place value of the digit 5 in 4.05 is \_\_\_\_\_.
- The value of the digit 7 in 2.7 is \_\_\_\_\_.
- The value of the digit 3 in 3.2 is \_\_\_\_\_.
- The value of the digit 9 in 0.39 is \_\_\_\_\_.

## Different Forms of Decimals

**1 Standard Form** Writing the number in **digits**.

**Ex.** **54.23**

**2 Word Form** Writing the number in **words**, as you read it.

**Ex.** • Start reading the number from the **left** to the **right**:

Read the whole number

The decimal point is read as "and"

Read the decimal part

The place value of the last digit

5 4 . 2 3

**Fifty-four and twenty-three hundredths**

- If the whole number on the left of the decimal point is **zero**, we read the number on the **right** of the decimal point only.  
We also say the **place value** of the **last** digit.

### Notice the following examples

3 . 4

Three and four-tenths

217 . 6

Two hundred seventeen and six-tenths

9 . 05

Nine and five-hundredths

13 . 28

Thirteen and twenty-eight hundredths

0 . 7

Seven-tenths

0 . 05

Five-hundredths

0 . 53

Fifty-three hundredths

## 3 Complete:

- a **3.5** is read as \_\_\_\_\_.
- b **2.16** is read as \_\_\_\_\_.
- c **75.3** is read as \_\_\_\_\_.
- d **0.7** is read as \_\_\_\_\_.
- e \_\_\_\_\_ is read as "Three-tenths".
- f \_\_\_\_\_ is read as "Ninety-five hundredths".
- g \_\_\_\_\_ is read as "Twenty-five and five hundredths".

**3 Expanded Form** • Writing each digit with its **value** in an addition operation form.

**Ex.****54.23**

$$50 + 4 + 0.2 + 0.03$$

**4 Unit Form**• Writing each digit with its **place value**.**Ex.****54.23**

5 Tens, 4 Ones, 2 Tenths, 3 Hundredths

## 4 Complete the following table:

Standard Form	Expanded Form	Unit Form
a 25.9		
b 3.75		
c 5.6		
d 3.08		

5 Write the following numbers in **standard form**:

a Five and sixty-three hundredths =

b  $90 + 2 + 0.3 + 0.04 =$

c 9 Hundreds, 5 Ones, 7 Hundredths =

6 Write the following numbers in **word form**:

a **5.29** =

b  $30 + 2 + 0.5 =$

c 7 Tens, 3 Ones, 6 Hundredths =

7 Write the following numbers in **expanded form**:

a **59.29** = + + + .

b 5 Hundredths, 6 Tenths = + .

c Sixty and twenty-five hundredths = + + .

8 Write the following numbers in **unit form**:

a Five hundred, thirty and six-tenths =

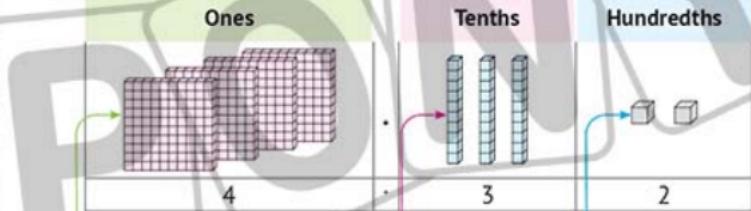
b  $50 + 6 + 0.3 + 0.09 =$

c **672.93** =

## The Place Value Table

Using models to represent the decimals:

Ex. 4.32 is represented as follows:



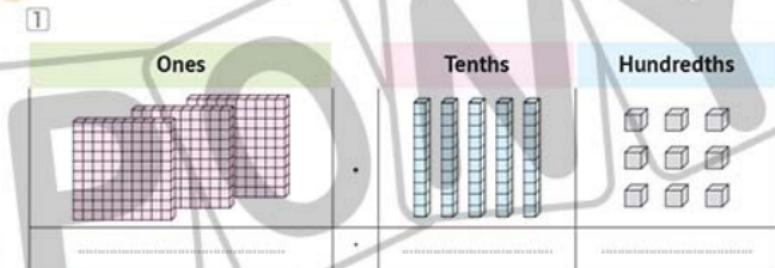
Each shape represents a whole one.

Each shape represents a tenth.

Each shape represents a hundredth.

- Standard Form: 4.32
- Word Form: Four and thirty-two hundredths
- Expanded Form:  $4 + 0.3 + 0.02$
- Unit Form: 4 Ones, 3 Tenths, 2 Hundredths

9 Write the number represented on the model:



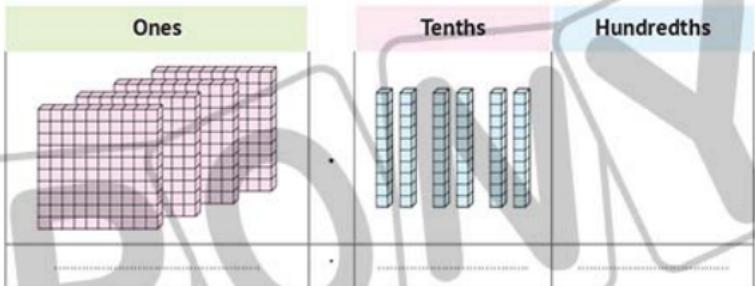
a Standard Form:

b Word Form:

c Expanded Form:

d Unit Form:

2



a Standard Form: .....

b Word Form: .....

c Expanded Form: .....

d Unit Form: .....



## 1 Choose the correct answer:

a  $50 + 9 + 0.07 =$  ..... (59.7 or 509.07 or 5.97 or 59.07)  
 b 2 Tens + 2 Tenths = ..... (20.02 or 2.2 or 20.2 or 2.02)  
 c Seventy and seven-hundredths = ..... (70.07 or 7.7 or 70.7 or 7.07)  
 d The value of the digit 3 in 6.37 is ..... (30 or 3 or 0.3 or 0.03)  
 e In "83.69", the digit ..... is in the Hundredths place. (8 or 3 or 6 or 9)

## 2 Complete:

a  $6.25 =$  ..... (Word form)  
 b  $16.09 =$  ..... (Expanded form)  
 c  $69.2 =$  ..... (Unit form)  
 d The place value of the digit 8 in 86.3 is .....  
 e The value of the digit ..... in 76.34 is 0.3.

# Unit

# 10

# Decimals

## Concept

## 10.2

### Decimals and Fractions

#### Lessons

#### 5-7

Same Value, Different Ways

The Whole Breakdown

All Things Equal

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Read and write decimals as fractions.
- Explain the relationship between decimals and fractions.
- Explain the relationship between decimals or fractions and the whole.
- Create equivalent fractions and decimals to the Hundredths place.



# Lessons

## 5-7

### Same Value, Different Ways The Whole Breakdown All Things Equal

#### Decimals in Fraction Form

1 When there is one digit on the right side of the decimal point:

We write 10 as the denominator.

$$0.3 \rightarrow \frac{3}{10}$$

Three-tenths

$$3.4 \rightarrow 3 \frac{4}{10}$$

Three and four-tenths

2 When there are two digits on the right side of the decimal point:

We write 100 as the denominator.

$$0.12 \rightarrow \frac{12}{100}$$

Twelve-hundredths

$$0.05 \rightarrow \frac{5}{100}$$

Five-hundredths

$$2.69 \rightarrow 2 \frac{69}{100}$$

Two and sixty-nine hundredths

1 Complete the following table:

	Decimal	Fraction	Word Form
a	0.7		
b	5.09		
c	12.3		
d		$\frac{15}{100}$	
e		$2 \frac{1}{10}$	

## The Parts of Whole One

1 A whole one can be divided into: 10 equal parts

$$\text{Whole one} = \frac{10}{10} \text{ (10 Tenths)}$$



Ex.

$$2 = \frac{20}{10} \text{ (20 Tenths)}$$

$$3 = \frac{30}{10} \text{ (30 Tenths)}$$

$$3.6 = \frac{36}{10} \text{ (36 Tenths)}$$

2 A whole one can be divided into: 100 equal parts

$$\text{Whole one} = \frac{100}{100} \text{ (100 Hundredths)}$$



Ex.

$$2 = \frac{200}{100} \text{ (200 Hundredths)}$$

$$3 = \frac{300}{100} \text{ (200 Hundredths)}$$

$$3.6 = \frac{360}{100} \text{ (360 Hundredths)}$$

$$7.08 = \frac{708}{100} \text{ (708 Hundredths)}$$

$$5.73 = \frac{573}{100} \text{ (573 Hundredths)}$$

$$36.54 = \frac{3,654}{100} \text{ (3,654 Hundredths)}$$

2 Decompose each of the following into units:

Number	Fraction Form	Parts of Tenths
Ex. 3.7	$\frac{37}{10}$	37 Tenths
a. 6	—	Tenths
b. 4.7	—	Tenths
c. 12.8	—	Tenths
d. 0.5	—	Tenths

3 Decompose each of the following into **units**:

Number	Fraction Form	Parts of Hundredths
Ex. 5	$\frac{500}{100}$	500 Hundredths
Ex. 3.7	$\frac{370}{100}$	370 Hundredths
a. 5	.....	Hundredths
b. 3.2	.....	Hundredths
c. 0.05	.....	Hundredths
d. 2.03	.....	Hundredths
e. 12.09	.....	Hundredths
f. 51.34	.....	Hundredths

4 Aida has a brother who is  $50\frac{1}{10}$  cm tall.

Express the height in the form of **decimal**:

Rewrite  $50\frac{1}{10}$  cm using **Tenths** only:

5 Adam has  $1\frac{4}{10}$  liters of water.

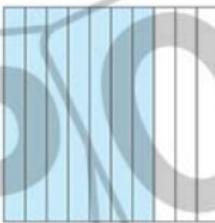
Express the capacity in the form of a **decimal**:

Rewrite  $1\frac{4}{10}$  liters using **Tenths** only:

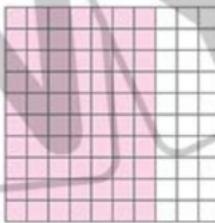
## Equivalent Decimals

They are decimals that are **equal** in value.

Look at the following models:



- The decimal that represents the shaded parts is  $0.7$  ( $\frac{7}{10}$ ).



- The decimal that represents the shaded parts is  $0.70$  ( $\frac{70}{100}$ ).

We deduce that:  $0.7 = 0.70$

Because:  $\frac{7}{10} = \frac{70}{100}$

**Ex.**

•  $0.3 = 0.30$

Because:  $(\frac{3}{10} = \frac{30}{100})$

•  $1.4 = 1.40$

Because:  $(\frac{14}{10} = \frac{140}{100})$

•  $15.8 = 15.80$

Because:  $(\frac{158}{10} = \frac{1580}{100})$

6 Complete the following:

a  $\frac{50}{10} = \frac{50}{100}$

b  $\frac{9}{10} = \frac{90}{100}$

c  $\frac{8}{10} = \frac{\dots}{100}$

d  $0.90 = \frac{\dots}{100} = \frac{\dots}{10}$

e  $0.2 = \frac{\dots}{10} = \frac{\dots}{100}$

f  $\frac{6}{10} = \frac{60}{\dots}$

g  $5.2 = \frac{\dots}{10} = \frac{\dots}{100}$

h  $9.26 = \frac{\dots}{100}$

i  $1.5 = \frac{\dots}{10} = \frac{\dots}{100}$

7 Write an equivalent fraction and an equivalent decimal for each of the following:

a  $\frac{1}{10}$

• Fraction :  $\frac{1}{10} = \frac{\text{.....}}{100}$

• Decimal : ..... = .....

c 0.4

• Fraction :  $\frac{\text{.....}}{10} = \frac{\text{.....}}{100}$

• Decimal :  $0.4 = \text{.....}$

b  $\frac{70}{100}$

• Fraction :  $\frac{70}{100} = \frac{\text{.....}}{10}$

• Decimal : ..... = .....

d 0.30

• Fraction :  $\frac{\text{.....}}{100} = \frac{\text{.....}}{10}$

• Decimal :  $0.30 = \text{.....}$

e 2.1

• Fraction :  $2 \frac{\text{.....}}{10} = 2 \frac{\text{.....}}{100}$

• Decimal :  $2.1 = \text{.....}$

f  $1 \frac{4}{10}$

• Fraction :  $1 \frac{4}{10} = 1 \frac{\text{.....}}{100}$

• Decimal : ..... = .....

8 Naglaa made a cake and divided it into equal pieces. She put different-colored icings on the cake.

a What is the fraction and decimal of the pink part?

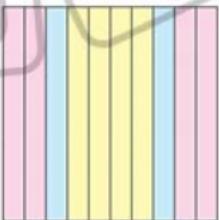
• Fraction: .....

• Decimal: .....

b If Naglaa cut the cake into 100 pieces, what are

the fraction and decimal of the yellow part?

• Fraction:  $\frac{\text{.....}}{10} = \frac{\text{.....}}{100}$       • Decimal: ..... = .....



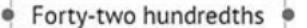


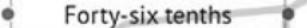

1 Match each number written in the unit form to its equivalent values in **decimal** and **fraction** forms:











2 Complete the following:

a  $\frac{5}{10} = \frac{\dots}{100}$

b  $\frac{6}{10} = \frac{60}{\dots}$

c  $\frac{\dots}{10} = \frac{70}{100}$

d  $0.3 = \dots$  (Equivalent decimal)

e  $0.90 = \dots$  (Equivalent decimal)

f  $2.1 = \dots$  (Equivalent decimal)

# Unit

## 10

# Decimals



## Concept

### 10.3

## Operations on Decimals

### Lessons

#### 8&9

Comparing Decimals

Comparing Fractions and Decimals

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Compare decimals that do not have the same number of digits.
- Compare decimals with fractions that have 10 or 100 as the denominator.

### Lessons

#### 10&11

Adding Fractions with Denominators 10 and 100 Using Models or by Converting Into Equivalent Fractions

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Use models to add two fractions with related denominators.
- Add two fractions with related denominators.

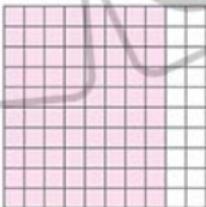


Lessons  
8 & 9Comparing Decimals  
Comparing Fractions and Decimals

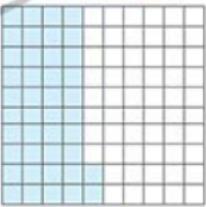
## 1 Comparing Decimals:

Ex. • Which is greater 0.8 or 0.42?

First: Using Models:



0.8 (80 colored squares)



0.42 (42 colored squares)

So,  $0.8 > 0.42$ 

1 Shade each model according to the decimal, then compare using ( $<$ ,  $=$ , or  $>$ ):

a



0.7

0.3

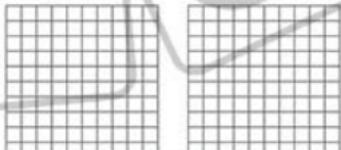
b



0.5

0.8

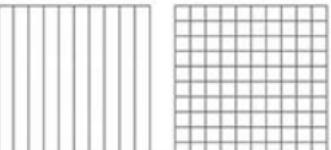
c



0.52

0.25

d



0.3

0.45

## Second: Using the Place Value Table:

**Ex.** • Which is greater 0.8 or 0.42?

Ones	Decimal Point	Tenths	Hundredths
0	.	8	
0	.	4	2

10

Unit

- The digits in the Ones place: They are equal, so we can't compare them.
- The digits in the Tenths place: The first digit (8) is greater than the second digit (4).

So,  $0.8 > 0.42$

2 Rewrite the decimals in the following place value tables, then compare using ( $<$ ,  $=$ , or  $>$ ):

a  $0.34$    $0.4$

Ones	Tenths	Hundredths
.		
.		

b  $0.45$    $0.04$

Ones	Tenths	Hundredths
.		
.		

c  $0.50$    $0.5$

Ones	Tenths	Hundredths
.		
.		

d  $0.03$    $0.3$

Ones	Tenths	Hundredths
.		
.		

## Third: Using Tenths and Hundredths:

**Ex.** • Which is greater 13.95 or 13.92?

1 Compare the Whole Number

$13.95$

$13.92$

We find that:  $13 = 13$

2 Compare the Tenths

$13.95$

$13.92$

We find that:  $9 = 9$

3 Compare the Hundredths

$13.95$

$13.92$

We find that:  $2 < 5$

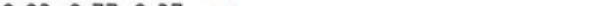
So,  $13.92 < 13.95$

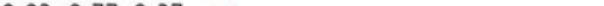
### 3 Compare the decimals using ( $<$ , $=$ , or $>$ ):

a	0.07	0.7	b	0.34	0.04	c	0.35	0.3
d	8.2	8.26	e	5.18	5.08	f	20.30	20.3
g	6.26	7.88	h	15.18	15.81	i	43.30	40.33

4 Arrange the following decimals in an ascending order:

5 Arrange the following decimals in a descending order:

a  $0.7, 0.02, 0.77, 0.27$  → 

b  $5.81, 81.5, 1.85, 15.8$  → 

## 2 Comparing Fractions and Decimals:

**Ex.** • Compare using ( $<$ ,  $=$ , or  $>$ ):

$$\begin{array}{r} 2.8 \\ \downarrow \\ 2 \frac{8}{10} \end{array} \quad \begin{array}{r} \boxed{\phantom{00}} \\ \boxed{\phantom{00}} \\ \boxed{\phantom{00}} \end{array} \quad \begin{array}{r} 2 \frac{45}{100} \\ \downarrow \\ 2 \frac{45}{100} \end{array}$$

$2 \frac{80}{100}$    $>$   $2 \frac{45}{100}$

We can convert the decimal into a fraction.

6 Compare using ( $<$ ,  $=$  or  $>$ ):

a.  $0.6$    $\frac{3}{5}$

b.  $0.04$    $\frac{4}{10}$

c.  $8.1$    $3\frac{2}{5}$

d.  $5.03$    $4\frac{7}{9}$

e.  $2.85$    $7\frac{3}{4}$

f.  $2.15$    $2\frac{15}{100}$

## 7 Which is greater....?

a. A bottle containing  $\frac{5}{10}$  liter of olive oil, or a bottle containing  $0.73$  liter of olive oil?b.  $0.6$  of a pizza, or  $\frac{4}{10}$  of the same pizza?c. A distance of  $0.44$  kilometer, or  $\frac{40}{100}$  kilometer?

10

## 1 Choose the correct answer:

a.  $6.45 > \dots$

(6.5 or 6.4 or 64.4 or 45.5)

b.  $3\frac{1}{2} < \dots$

(3.06 or 3.5 or 3.28 or 3.52)

c.  $7.04 = \dots$

(7  $\frac{4}{10}$  or 7  $\frac{4}{100}$  or 7  $\frac{40}{100}$  or 70  $\frac{4}{10}$ )2 Compare using ( $<$ ,  $=$  or  $>$ ):

a.  $3.08$  .....  $3.8$

b.  $5\frac{1}{2}$  .....  $5.2$

c.  $91.6$  .....  $\frac{916}{10}$

## 3 Arrange the following fractions in an ascending order:

•  $0.6$  ,  $0.06$  ,  $0.66$  ,  $0.16$  ..... , , ,

## 4 Arrange the following fractions in a descending order:

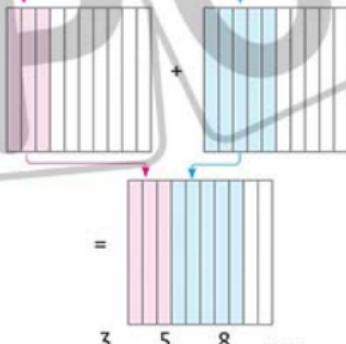
•  $21.05$  ,  $2.15$  ,  $21.5$  ,  $20.15$  ..... , , ,

Lessons  
10 & 11

## Adding Fractions with Denominators 10 and 100 Using Models or by Converting Into Equivalent Fractions

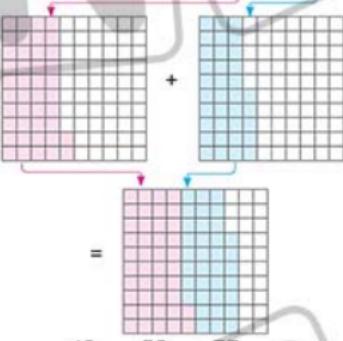
## First: Using Models

**Ex.** • Add:  $\frac{3}{10} + \frac{5}{10}$



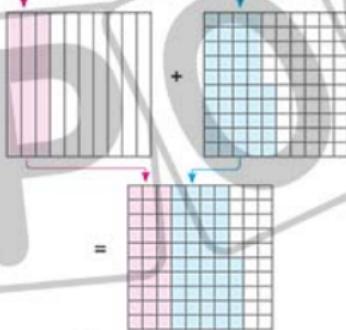
$$\frac{3}{10} + \frac{5}{10} = \frac{8}{10} = 0.8$$

**Ex.** • Add:  $\frac{42}{100} + \frac{35}{100}$



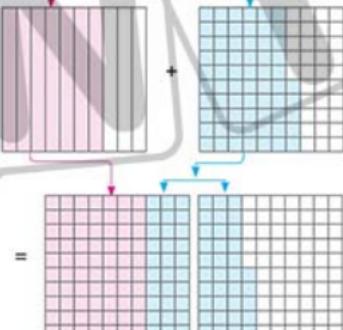
$$\frac{42}{100} + \frac{35}{100} = \frac{77}{100} = 0.77$$

**Ex.** • Add:  $\frac{3}{10} + \frac{45}{100}$



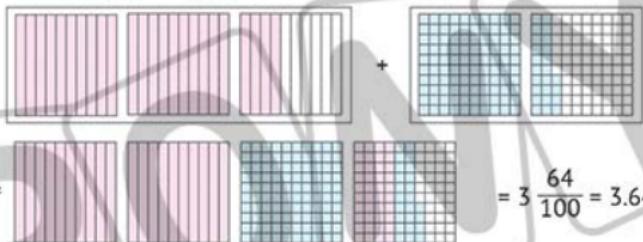
$$\frac{30}{100} + \frac{45}{100} = \frac{75}{100} = 0.75$$

**Ex.** • Add:  $\frac{7}{10} + \frac{65}{100}$



$$\frac{35}{100} + \frac{65}{100} = \frac{135}{100} = 1 \frac{35}{100} = 1.35$$

**Ex.** • Add:  $2 \frac{4}{10} + 1 \frac{24}{100}$



1 Shade the following models according to the fractions shown, then find the result:

a

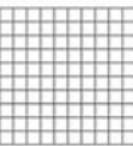


+



$$\frac{3}{10} + \frac{4}{10} = \dots$$

b

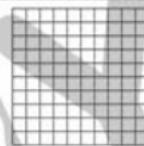
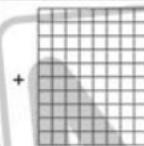


+



$$\frac{14}{100} + \frac{7}{10} = \dots$$

c



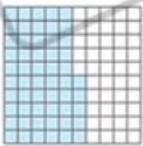
$$1 \frac{8}{10} + 1 \frac{4}{100} = \dots$$

2 Write the **addition equations** that are represented on the following models, then solve them:

a



+

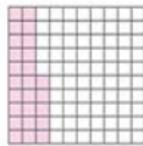


$$\dots + \dots = \dots$$

b



+



$$\dots + \dots = \dots$$

## Second: Using Equivalent Fractions

a  $\frac{3}{10} + \frac{5}{10} = \frac{8}{10} = 0.8$

b  $\frac{42}{100} + \frac{35}{100} = \frac{77}{100} = 0.77$

c  $2 \frac{4}{10} + 1 \frac{24}{100} = 2 \frac{40}{100} + 1 \frac{24}{100} = 3 \frac{64}{100} = 3.64$

Important Note:  $\frac{4}{10} = \frac{40}{100}$

d  $3 \frac{3}{10} + 4 \frac{45}{100} = 3 \frac{30}{100} + 4 \frac{45}{100} = 7 \frac{75}{100} = 0.75$

Important Note:  $\frac{3}{10} = \frac{30}{100}$

3 Find the result:

a  $\frac{7}{10} + \frac{2}{10} = \frac{\text{.....}}{10}$

b  $\frac{6}{100} + \frac{25}{100} = \frac{\text{.....}}{100}$

c  $2 \frac{3}{10} + 5 \frac{4}{10} = \frac{\text{.....}}{10}$

d  $5 \frac{12}{100} + 7 \frac{53}{100} = \frac{\text{.....}}{100}$

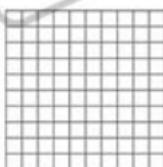
e  $\frac{2}{10} + \frac{3}{100} = \frac{\text{.....}}{10} + \frac{\text{.....}}{100} = \frac{\text{.....}}{100}$

f  $\frac{15}{100} + \frac{7}{10} = \frac{\text{.....}}{100} + \frac{\text{.....}}{10} = \frac{\text{.....}}{100}$

g  $2 \frac{2}{100} + 2 \frac{3}{10} = \frac{\text{.....}}{100} + \frac{\text{.....}}{10} = \frac{\text{.....}}{100}$

h  $2 \frac{7}{10} + 3 \frac{24}{100} = \frac{\text{.....}}{10} + \frac{\text{.....}}{100} = \frac{\text{.....}}{100}$

4 Ashraf walks  $\frac{5}{10}$  kilometer from home to school every day. Then, he stops and continues walking for  $\frac{22}{100}$  kilometer until he reaches his school. What is the total **distance** that Ashraf walks? Use the **models** to show your answer.



5 Eslam was training for a running competition. On Monday, he ran a distance of  $\frac{8}{10}$  kilometer. On Tuesday, he ran  $\frac{24}{100}$  kilometer. What is the total distance that Eslam ran?



10

1 Find the result:

a  $\frac{6}{10} + \frac{3}{10} = \dots$

b  $\frac{36}{100} + \frac{55}{100} = \dots$

c  $\frac{4}{10} + \frac{7}{10} = \dots = \dots$

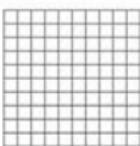
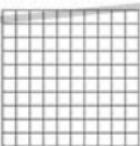
d  $\frac{52}{100} + \frac{73}{100} = \dots = \dots$

e  $\frac{4}{10} + \frac{4}{100} = \dots + \dots = \dots$

f  $\frac{75}{100} + \frac{8}{10} = \dots + \dots = \dots$

g  $1 \frac{7}{100} + 2 \frac{5}{10} = \dots + \dots = \dots$

2 Shade the following models according to the fractions shown, then find the result:



$$1 \frac{4}{10} + \frac{74}{100} = \dots$$

# Unit

## 11

# Data With Fractions



### Concept

## 11.1

### Creating and Analyzing Graphs

#### Lesson 1

#### Different Graphs

##### Learning Objectives:

By the end of this lesson, the student will be able to:

- Distinguish between different types of graphs.
- Explain the difference between bar graphs and double bar graphs.
- Explain when it is appropriate to use double bar graphs.

#### Lessons 2&3

#### Plotting Along Breaking the Bar

##### Learning Objectives:

By the end of these lessons, the student will be able to:

- Explain why data might include fractions.
- Construct a line plot using data with fractions.
- Analyze a line plot using data with fractions.
- Construct a bar graph using data with fractions.
- Analyze a bar graph using data with fractions.
- Construct a double bar graph using data with fractions.
- Analyze a double bar graph using data with fractions.



## Lesson 1

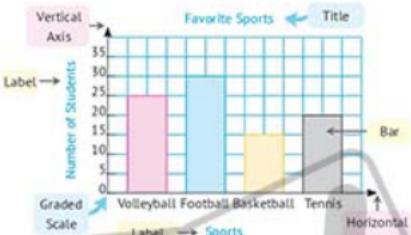
## Different Graphs

## First: Bar Graph

It is the **representation** of data through individual columns to compare different groups.

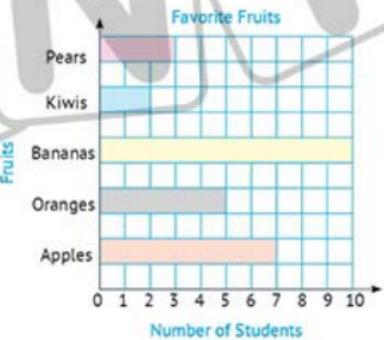
**Ex.** The following bar graph represents the **favorite sports** of a group of students:

Sports	Number of Students
Volleyball	25
Football	30
Basketball	15
Tennis	20



**Ex.** The following bar graph represents the **favorite fruits** of a group of students:

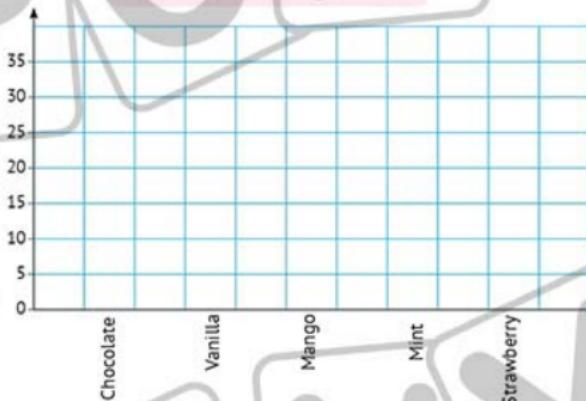
Fruits	Number of Students
Apples	7
Oranges	5
Bananas	10
Kiwis	2
Pears	3



1 The following table shows the **favorite ice cream flavor** of some people:

Ice Cream Flavors	Chocolate	Vanilla	Mango	Mint	Strawberry
Number of People	20	15	30	10	5

a Represent the previous data using the following **bar graph**.



b Answer the following questions:

- 1 How many people like **mango**?
- 2 How many more people like **chocolate** than **strawberry**?
- 3 What is the total number of people who like **mint, vanilla, and strawberry**?
- 4 What is the **most** preferred ice cream flavor?
- 5 What is the **least** preferred ice cream flavor?

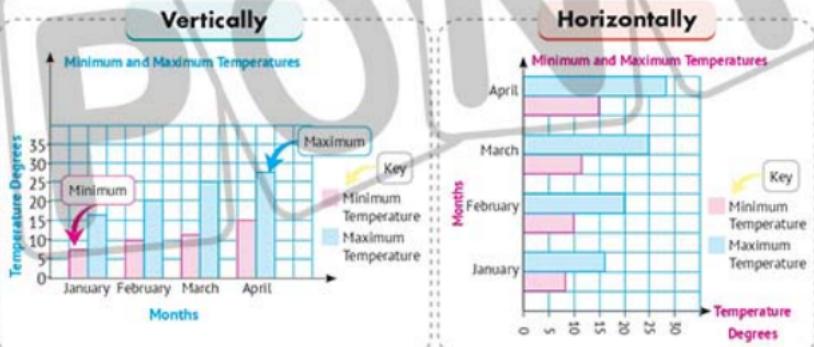
## Second: Double Bar Graph

It is used to represent **two sets of related data**, using bars with different **colors** and **heights**.

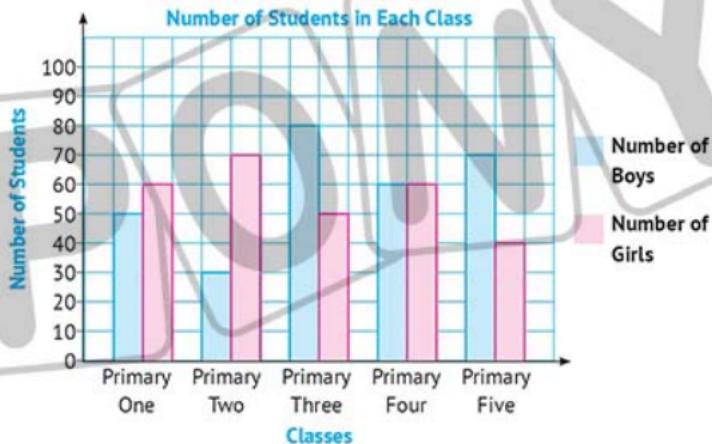
**Ex.** The following table shows the **average minimum and maximum temperatures** in Cairo in 4 months:

Months	January	February	March	April
Minimum Temperatures	8	10	12	15
Maximum Temperatures	16	20	25	28

- 1 The data is represented using **two bars** for each month, one representing the **minimum temperatures** and the other representing the **maximum temperatures**.
- 2 The bars of the minimum temperatures are colored the **same color** in all months. Also, the bars of the maximum temperatures are colored the **same color**, which is **different** from the minimum temperatures' **color** in all months.
- 3 The **key** of the graph is **two squares** with the colors used in the graph; what the colors indicate is written beside the squares.



2 The following double bar graph represents the number of boys and the number of girls in each class in a school:



a Complete the following table:

Class	Primary One	Primary Two	Primary Three	Primary Four	Primary Five
Number of Boys	.....	.....	.....	.....	.....
Number of Girls	.....	.....	.....	.....	.....

b Answer the following questions:

- 1 Which class has the same number of boys and girls?
- 2 Which classes have more boys than girls?
- 3 Which classes have less boys than girls?
- 4 How many more boys are there in primary 3 than in primary 5?
- 5 How many more girls are there in primary 2 than in primary 5?
- 6 What is the total number of boys in all classes?

Choosing how to represent data depends on the type of data we want to represent.

### Bar graphs

They're used to display and compare data for different categories or groups.

**Ex.** The favorite colors of a number of students, the number of moons that revolve around each planet, ...etc.

### Double bar graphs

They're used to compare two similar sets of data.

**Ex.** Comparison between the numbers of boys and girls in school classes, comparison between maximum and minimum temperatures, ...etc.

**3** Write down the type of graph for each of the following:

(Bar Graph - Double Bar Graph)

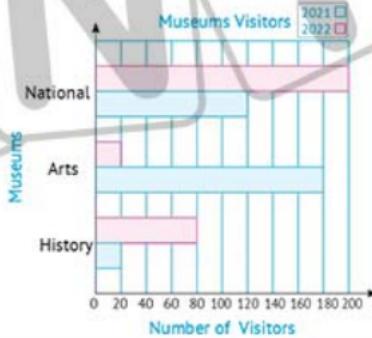
- a Favorite sport for a number of students (.....)
- b Comparison between the number of hours that Hossam and Hanaa spend studying (.....)
- c Comparison between the number of goals of two teams in the Football League in the first seven weeks of the league (.....)
- d Numbers of students in different grades in a school (.....)

# Quiz

10

1 The following double bar graph shows the number of visitors of three museums in 2021 and 2022. Complete the table below:

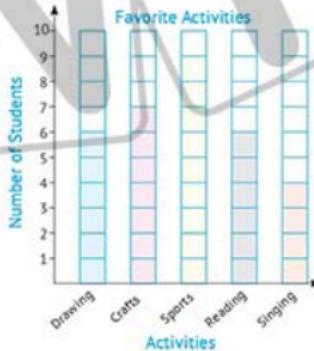
Museums	Number of Visitors	
	2021	2022
History		
Arts		
National		



2 The following graph shows the students' votes for their favorite activities. Complete the following table, then answer the questions:

Activities	Drawing	Crafts	Sports	Reading	Singing
Number of Students					

- Which activity did most students prefer?
- Which activity was chosen by the fewest students?
- How many more students chose sports than crafts?
- Which two activities have a sum equal to the number of students who chose sports?



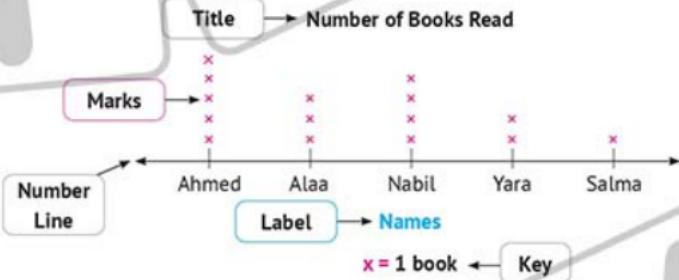
Lessons  
2&3

## Plotting Along &amp; Breaking the Bar

## Line Plot Graph

- **Line Plot Graph:** It's a graph that represents **repeated** data on the **horizontal** number line.
- **Repetition:** It's the number of times something happens.

Ex.



## Line Plot Graph Elements

**Title** It explains the graph "Number of Books Read".

**Number Line** It's a line divided according to the labels.

**Labels** They describe what the data on the number line represents.

**Marks** (x) They are put according to the number of repetition of data.

**Key** It indicates what each (x) represents.



**Note:** • In the previous graph, there are 5 people, and we put the (x) mark(s) above each of them. The number of marks represents the **number of books** each of them read, where each (x) represents **one book**.

1 The following table shows the distance between the students' houses and their school:

1 km	$\frac{4}{5}$ km	$\frac{4}{5}$ km	$\frac{1}{5}$ km
1 km	$\frac{4}{5}$ km	$\frac{2}{5}$ km	$\frac{4}{5}$ km
$\frac{3}{5}$ km	$\frac{3}{5}$ km	$\frac{2}{5}$ km	$\frac{2}{5}$ km

a Complete the line plot graph using the previous data:



X = ..... km

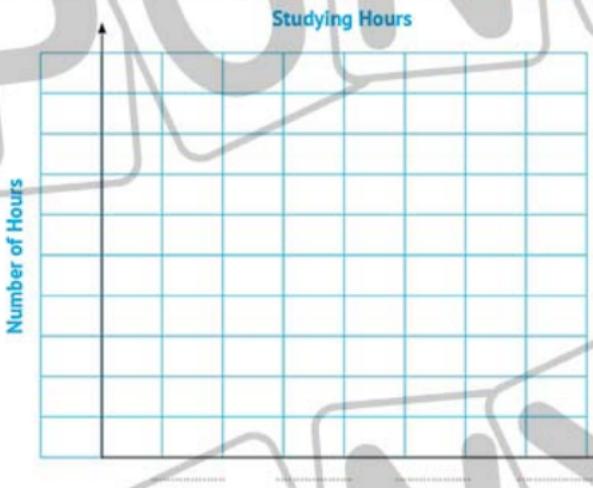
b Answer the following questions:

- 1 What is the **total** number of students who shared the distance between their school and their houses?
- 2 What is the **shortest** distance for a student to get to school?
- 3 What is the **longest** distance for a student to get to school?
- 4 What is the distance that **most** of the students cover to get to school?
- 5 What is the distance that the **least** number of students cover to get to school?

2 The following table shows the **number of studying hours** of some children in **one day**:

Children	Hazem	Mervat	Ashraf	Walaa
Hours	$1 \frac{1}{2}$	3	$2 \frac{1}{2}$	$3 \frac{1}{2}$

a Represent the previous data using the following **bar graph**.



b Answer the following questions:

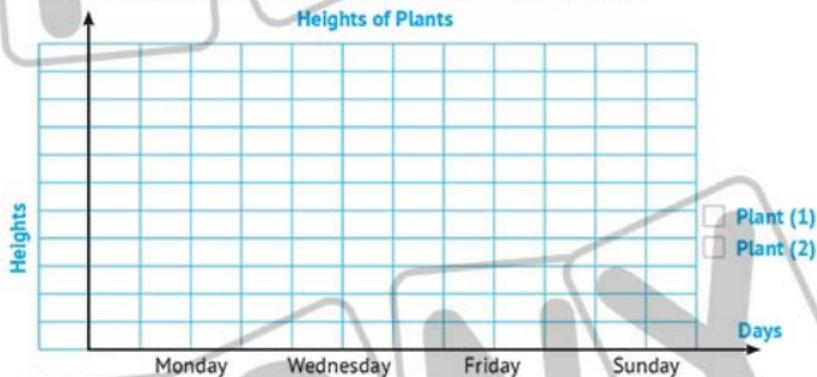
- 1 How many hours did **Hazem** study?
- 2 Who studied for the **most** number of hours?
- 3 Who studied for the **least** number of hours?
- 4 What is the total number of hours **Hazem** and **Mervat** studied altogether?
- 5 What is the difference between the number of studying hours of **Ashraf** and **Walaa**?

## Fractions, Decimals, and Proportional Relationships

3 Kamal planted **two different** types of plants in the science class. After the plants grew a little, Kamal wrote their **heights** to the nearest  $\frac{1}{2}$  cm for 4 days, as shown in the following table:

Day	Monday	Wednesday	Friday	Sunday
Plant (1)	$2\frac{1}{2}$	$2\frac{1}{4}$	3	$3\frac{1}{2}$
Plant (2)	$3\frac{1}{2}$	4	$4\frac{1}{2}$	5

a Represent the previous data using a **double bar graph**.



b Answer the following questions:

- 1 What is the amount of growth of plant (1) from **Monday** to **Sunday**?
- 2 What is the difference between the heights of plant (1) and plant (2) on **Friday**?
- 3 What is the sum of the heights of both plants on **Wednesday**?
- 4 Which plant was **taller** on **Monday**?

## The Best Graph to Represent the Given Data

### Bar Graph

A bar graph is used to compare things between different groups or to track change over large periods of time with one group surveyed.

Examples of data that can be represented by a bar graph:

- Favorite animal or pet
- Favorite season
- Favorite color or sport
- Favorite subject
- Favorite food or fruit
- Students' marks

### Double Bar Graph

A double bar graph is used to display two sets of data on the same graph using two different colors to compare the two categories.

Examples of data that can be represented by a double bar graph:

- Favorite color between boys and girls
- Favorite food between boys and girls
- Students' marks of two subjects
- Highest and lowest temperatures of some cities
- Saved amounts during months between two people

### Line Plot

A line plot is used to show the frequency of data on a number line.

Examples of data that can be represented by a line plot:

- Data involving measurements such as length, time, distance, height, or weight.
- Number of siblings
- Number of pets



10

1 The following table shows the weights of a group of pets.  
Represent this data using a line plot graph:

$3\frac{1}{5}$ km	$2\frac{3}{5}$ km	2 km	3 km	$2\frac{3}{5}$ km	$3\frac{4}{5}$ km
$3\frac{1}{5}$ km	2 km	$2\frac{1}{5}$ km	3 km	2 km	$2\frac{4}{5}$ km

 $x =$  \_\_\_\_\_

2 Choose the correct answer:

a Which of the following can be represented by a line plot?  
(Our favourite movie or Our favourite animal or Our heights or Our favourite food)

b Which of the following cannot be represented by a line plot?  
(Our family members numbers or Distance between home and school or

Our shoe sizes or Our favorite activity in the spare time)

c Which of the following can be represented by a double bar graph?  
(Sleeping hours every night or Maximum and minimum temperatures in different cities or

Favourite food or Lengths of 5 things on your desk)

d To compare between the rainfall in the deserts of Africa in the two

years 2020 and 2021, we use a \_\_\_\_\_.

(picture representation or bar graph or line plot graph or double bar graph)

# Applications of Geometry and Measurement

## Theme 4



### Theme Units

#### ► Unit 12 Geometry

Concept 12.1: Geometric Concepts

Concept 12.2: Classifying Shapes

#### ► Unit 13 Angles of a Circle

Concept 13.1: Breaking the Circle Into Angles

Concept 13.2: Measuring and Drawing Angles

# Unit

## 12

# Geometry

### Concept

## 12.1

### Geometric Concepts

#### Lessons

#### 1 & 2

#### Points, Lines, Line Segments, and Rays

#### The Relation Between Two Lines

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Identify points, lines, line segments, and rays.
- Draw points, lines, line segments, and rays.
- Define intersecting, parallel, and perpendicular lines.
- Draw intersecting, parallel, and perpendicular lines.

#### Lessons

#### 3 & 4

#### Symmetry

#### Real-World Geometry

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Identify lines of symmetry in two-dimensional figures.
- Draw lines of symmetry in two-dimensional figures.
- Apply geometry concepts to solve real-world problems.



# Lessons 1&2

## Points, Lines, Line Segments, and Rays The Relation Between Two Lines

### Point

- It is an exact location on a plane.
- The point is called using a **capital letter**.

Point Place  
 Point Name

A

### Line Segment

- It is a part of a line with **two end points**.
- The line segment is called using its **two end points**.

**Ex.** The opposite figure:

1 Read as: Line segment BC or line segment CB.

2 Written as:  $\overline{BC}$  or  $\overline{CB}$



### Ray

- It is a part of a line that has a **starting point**, but no **end point**.
- It continues forever in only **one direction**.

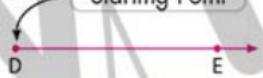
**Ex.** The opposite figure:

1 Read as: Ray DE.

2 Written as:  $\overrightarrow{DE}$

**Important Note:**

$\overrightarrow{DE}$  is not the same as  $\overrightarrow{ED}$ .



### Straight Line

- It is a line that continues **forever** in both directions.

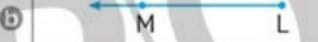
**Ex.** The opposite figure:

1 Read as: Straight line FG, or straight line GF.



2 Written as:  $\leftrightarrow FG$  or  $\leftrightarrow GF$ .

## 1 Complete the following table as in the example:

Figure	Word	Symbol
Ex.  A $\rightarrow$ B	Ray AB	$\overrightarrow{AB}$
a  X $\rightarrow$ Y		
b  M $\rightarrow$ L		
c  C $\rightarrow$ D		
d  C $\rightarrow$ B		

## 2 Draw:

a Line segment KL

b Ray XY

c Straight line BC

d  ABe  CDf  ED
**Important Notes:**

- Points, line segments, rays, and lines are plane figures.
- A plane is a flat surface that goes on forever in all directions.
- Planes have an infinite number of points and lines.
- Shapes on a plane have only two dimensions: length and width.
- Points and line segments are the building blocks of two-dimensional shapes.

## The Relation Between Two Lines

Pairs of lines have different names depending on how they are drawn on the plane.

### Intersecting Lines

- They are two lines that intersect or cross at a common point.

**Ex.**

- $XY$ ,  $AB$  are two **intersecting** lines at the point "M".

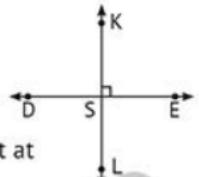


### Perpendicular Lines

- They are two lines that intersect or cross at a common point to form four square corners.

**Ex.**

- $KL$  and  $DE$  are **perpendicular** lines intersect at point "S".



The straight line  $KL$  is **perpendicular to** the straight line  $DE$ .

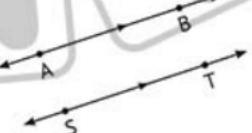
$$KL \perp DE$$

### Parallel Lines

- They are two lines that will never cross.
- A **small arrow** is often drawn on each line to show that the lines are **parallel**.

**Ex.**

- $ST$  and  $AB$  do not intersect.

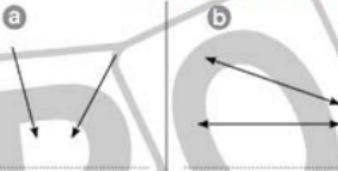


The straight line  $AB$  is **parallel to** the straight line  $ST$ .

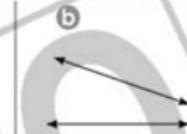
$$ST // AB$$

3 Note the following pairs of straight lines and rays, extend the straight lines or rays in each figure, and determine whether the lines are “**intersecting or parallel**”:

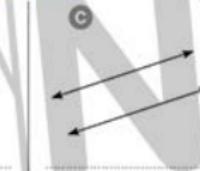
a



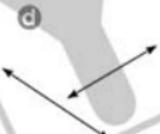
b



c

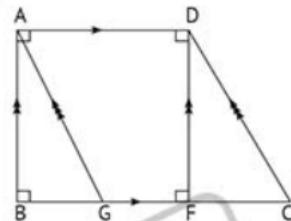


d



4 Use the following figure to answer the questions:

a The two line segments AD and ..... are parallel.



b The two line segments AD and ..... are perpendicular.

c The two line segments AB and ..... are parallel.

d The two line segments AB and ..... are perpendicular.

e AG and ..... are parallel.

f DF and ..... are perpendicular

5 Draw:

a  $CD \parallel AB$



c Ray DE is parallel to ray FG.



b  $ST \perp XY$



d Straight line MN is parallel to straight line WX.



# Quiz

1 Choose the correct name of each figure:

a



( $\overline{AB}$  or  $\overleftrightarrow{AB}$  or  $\overrightarrow{AB}$  or  $\overleftarrow{BA}$ )

c



( $\overline{XY}$  or  $\overleftrightarrow{XY}$  or  $\overrightarrow{XY}$  or  $\overleftarrow{YX}$ )

b



( $\overline{CD}$  or  $\overleftrightarrow{CD}$  or  $\overrightarrow{CD}$  or  $\overleftarrow{DC}$ )

d



( $\overline{FG}$  or  $\overleftrightarrow{FG}$  or  $\overrightarrow{FG}$  or  $\overleftarrow{GF}$ )

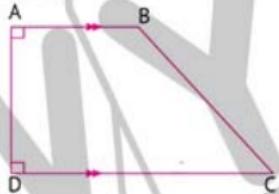
2 Complete:

a  $\overline{AB}$  and ..... are parallel.

b  $\overline{AB}$  and ..... are perpendicular.

c  $\overline{AB}$  and ..... are intersecting.

d  $\overline{DC}$  and ..... are perpendicular.



3 Draw:

a  $\overleftrightarrow{CD}$  parallel to  $\overleftrightarrow{AB}$



b  $\overleftrightarrow{XY}$  perpendicular to  $\overleftrightarrow{ZL}$



# Lessons

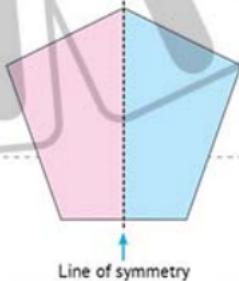
## 3&4

### Symmetry Real-World Geometry

Theme 4

#### The Symmetrical Shape

- The shape has symmetry if it can be folded to create **two identical halves**.



#### The Line (Axis) of Symmetry

- It is a line down the middle of the shape, which acts like a **mirror** between the two halves.

**Ex.**

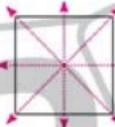
1 line of symmetry



2 lines of symmetry



3 lines of symmetry



4 lines of symmetry

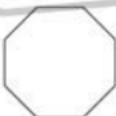


An infinite number of lines of symmetry

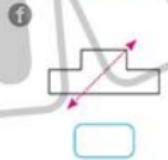
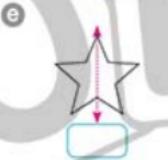
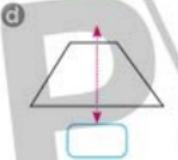
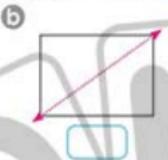
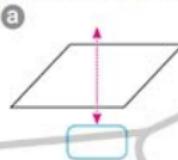


No lines of symmetry

1 Draw the **line(s) of symmetry** for each of the following shapes:



2 Put a tick (✓) if the drawn line is a **line of symmetry**:



3 Draw the **lines of symmetry** for the following letters and symbols, if any:

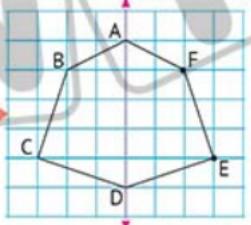
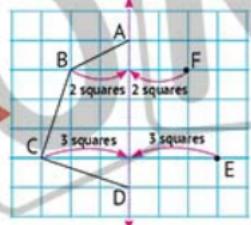
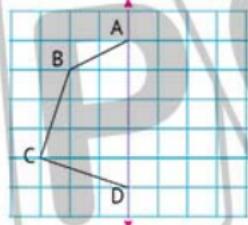
Z E I A B G P

**Draw the other part of a symmetrical shape**

We can draw the other part of a geometric shape using the **square grid**.

**Ex.**

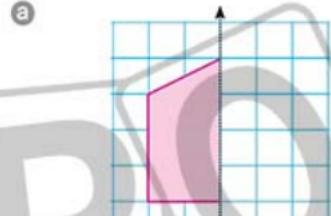
Draw the opposite part of the figure, where line  $\overleftrightarrow{AD}$  is the line of symmetry.



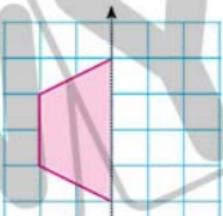
- Mark the points corresponding to the vertices, as they will be the same distance from the line of symmetry, and use the squares to locate the points.
- Match the dots to form a symmetrical shape around the line  $\overleftrightarrow{AD}$ .

4 Half of an image and the line of symmetry are shown. Draw the rest of the image to complete each shape:

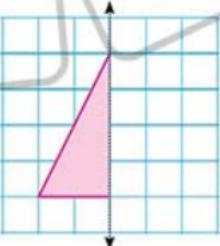
a



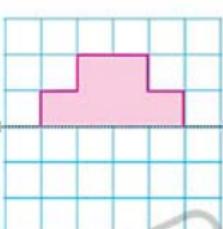
b



c

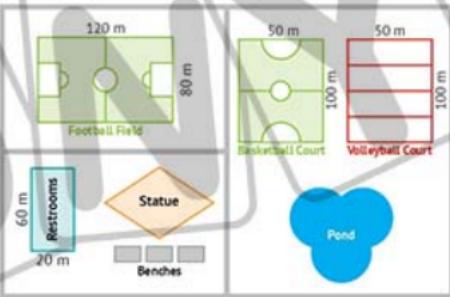


d



5 Look at the picture of the park, then answer:

a What geometric shape do **restrooms** represent?



b What is the area of the **football field**?

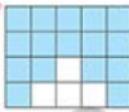
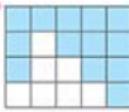
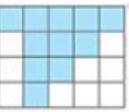
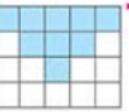
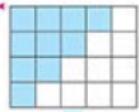
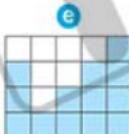
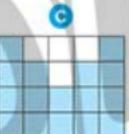
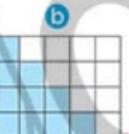
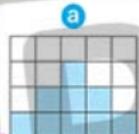
c What is the perimeter of the **basketball court**?

d How many **quadrilaterals** are there in the park?

e How many park **benches** are there?

# Quiz

1 Match each shape to its other half to get a symmetrical shape:

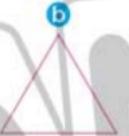


2 Draw the line(s) of symmetry for each of the following shapes:

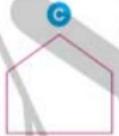
a



b

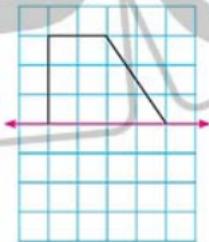


c

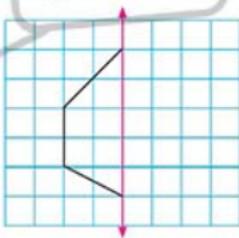


3 Draw the rest of the image to complete each symmetrical shape:

a



b



# Geometry

## Unit 12

12

I  Math

### Concept

12.2

### Classifying Shapes

Lessons  
5&6

Classifying Angles  
Drawing Angles

Learning Objectives:

By the end of these lessons, the student will be able to:

- Classify right angles using nonstandard tools.
- Identify right angles in the world around him/her.
- Determine whether angles are equal to, greater than, or less than right angles.
- Classify angles as right, obtuse, or acute.
- Draw right, acute, and obtuse angles.

Lessons  
7&8

Classifying Triangles  
Drawing Triangles

Learning Objectives:

By the end of these lessons, the student will be able to:

- Classify triangles by the size of their angles.
- Classify triangles by the length of their sides.
- Draw different types of triangles.

Lesson  
9

Classifying Quadrilaterals

Learning Objectives:

By the end of this lesson, the student will be able to:

- Classify quadrilaterals by sides and angles.
- Draw different types of quadrilaterals.

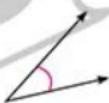


# Lessons 5&6

## Classifying Angles Drawing Angles

### Angle

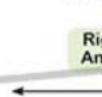
- It is formed when two lines, line segments, or rays intersect at a common end point.



### Types of Angles

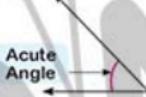
#### Right Angle

Its sides are perpendicular, and it forms a square vertex.



#### Acute Angle

It's smaller than a right angle.



#### Obtuse Angle

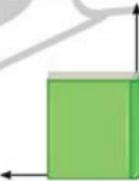
It's greater than a right angle.



- Examples of right angles around us:



Door



Book



Lamppost

1 Put a tick (✓) above the shapes that contain **right angles**:

a



b



c

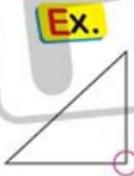


d



2 Circle the **right angles** in each of the following shapes, as in the example:

Ex.



a



b



c



d

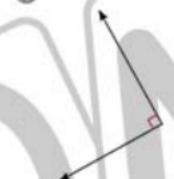


3 Look at the following angles, and write the type of each of them (acute angle, obtuse angle, right angle):

a



b



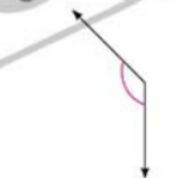
c



d



e



f



4 In each of the following shapes, determine the type of each angle:

Shape	Angle Type		
	Right Angle	Acute Angle	Obtuse Angle
a	1 2 3 4	1 2 3 4	✓
b	1 2 3 4	1 2 3 4	
c	1 2 3 4	1 2 3 4	
d	1 2 3 4 5	1 2 3 4 5	



## Important Notes:

- In the following image, a large number of lines can be named:



## Straight lines

$$\overleftrightarrow{AB}, \overleftrightarrow{AC}, \overleftrightarrow{BC}$$

## Line segments

$$\overline{AB}, \overline{BC}, \overline{AC}$$

## Rays

$$\overrightarrow{AB}, \overrightarrow{CB}, \overrightarrow{BA},$$

5 Write the name of the part colored in red in each straight line:



a



b



c



d

6 Draw:

a An acute angle.

b An obtuse angle.

c A right angle.

d A geometric figure that contains a right angle and an acute angle.

e A geometric figure that contains a right angle and an obtuse angle.

f A geometric figure that contains an acute angle and an obtuse angle.

g A hexagonal shape with all obtuse angles.

h A right angle and an acute angle sharing a starting point.

i A quadrilateral with at least two right angles.

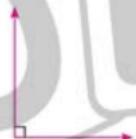
# Quiz

1 Write the type of each angle (acute angle, obtuse angle, or right angle):

a



b



c



2 Draw:

a A right angle.

b An obtuse angle.

c An acute angle.

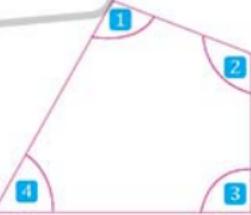
3 Determine the type of each angle in the following shape:

1

2

3

4



# Lessons 7&8

## Classifying Triangles Drawing Triangles

Theme 4

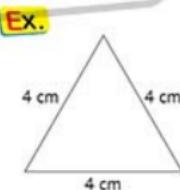
### Triangle

- It is a polygon with **3 sides** and **3 angles**

#### Classifying triangles by the length of their sides

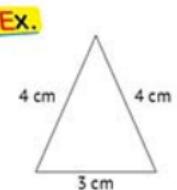
##### 1 Equilateral Triangle

3 equal sides



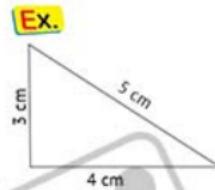
##### 2 Isosceles Triangle

2 equal sides



##### 3 Scalene Triangle

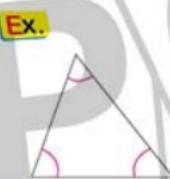
No equal sides



#### Classifying triangles by the measure of their angles

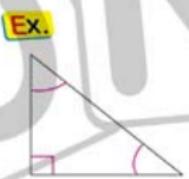
##### 1 Acute Triangle

3 acute angles



##### 2 Right Triangle

1 right angle



##### 3 Obtuse Triangle

1 obtuse angle



#### Important Notes:

- Any triangle has at least **two acute angles**.
- An equilateral triangle is an **acute triangle**, not vice versa.

## 1 Classify each of the following triangles (Complete the table):

Triangle	a	b	c	d
Type of Triangle by Angles				
Type of Triangle by Sides				

## 2 Put (E) below the equilateral triangles and (S) below the scalene triangles:

a	b	c	d
(.....)	(.....)	(.....)	(.....)

## 3 Put (O) below the obtuse triangles and (R) below the right triangles:

a	b	c	d
(.....)	(.....)	(.....)	(.....)

## 4 Draw:

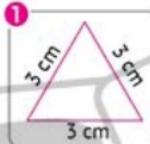
- a An obtuse triangle.
- b An equilateral triangle.
- c An isosceles triangle containing a right angle.
- d A scalene triangle containing an obtuse angle.



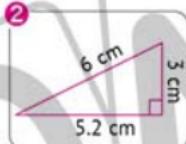
10

## 1 Match each triangle with its types:

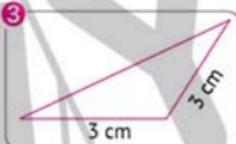
- a Equilateral triangle
- b Isosceles triangle
- c Scalene triangle



d Right triangle



e Acute triangle



f Obtuse triangle

## 2 Complete the following:

- a The isosceles triangle has ..... equal sides.
- b The right triangle has ..... acute angles.
- c The equilateral triangle has ..... equal sides.
- d The acute triangle has ..... acute angles.

# Lesson 9

## Classifying Quadrilaterals

### Quadrilaterals

- They are polygons that have **four** sides and **four** angles.

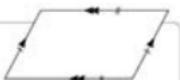
### Quadrilaterals

- Quadrilaterals with **0** pair of parallel sides are simply classified as **quadrilaterals**. However, quadrilaterals with at least **one** pair of parallel sides have names.

### Parallelogram

**Angles:** 2 acute angles and 2 obtuse angles.

**Sides:** 2 pairs of parallel sides, each two opposite sides are equal.



With four right angles

### Rectangle

**Angles:**

4 right angles

**Sides:**

2 pairs of parallel sides,  
each two opposite sides are equal.



With four right angles

### Rhombus

**Angles:** 2 acute angles

2 obtuse angles

**Sides:**

2 pairs of parallel sides,  
all sides are equal.

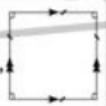


### Square

With all  
sides are  
equal

**Angles:** 4 right angles.

**Sides:** 2 pairs of parallel sides,  
all sides are equal



With  
four right  
angles

### Trapezium

**Angles:** Angles vary.

**Sides:** Only one pair of unequal parallel sides.



**1 Complete:**

a Quadrilaterals that contain two pairs of parallel sides are: \_\_\_\_\_

b Quadrilaterals that have four sides with equal lengths are: \_\_\_\_\_

c Quadrilaterals that have four right angles are: \_\_\_\_\_

d A trapezium has ..... pair of parallel sides that are ..... in length.

**2 Draw:**

a A quadrilateral with only one pair of parallel sides. \_\_\_\_\_

b A quadrilateral with 4 equal sides and 4 right angles. \_\_\_\_\_

**3 Who am I?**

a I have four sides, two acute angles and two obtuse angles, all sides are of the same length. (.....)

b I am an angle whose measure is less than the measure of a right angle. (.....)

c I am a triangle with all sides of the same length. (.....)

d I am a geometric figure formed by two rays that form a square angle. (.....)

e I am an angle whose measure is greater than the measure of a right angle. (.....)

f I am a three-sided polygon that can have an acute, right, or obtuse angle and all of my sides are of different lengths. (.....)

## 4 Match each quadrilateral with its name:

a

Parallelogram

b

Rectangle

c

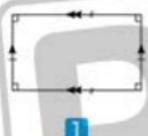
Rhombus

d

Square

e

Trapezium



1



2



## 1 Choose the correct answer:

a The quadrilateral that has 4 equal sides is a .....  
 ( rectangle or parallelogram or rhombus or trapezium )

b The quadrilateral that has 4 right angles is a .....  
 ( rectangle or parallelogram or rhombus or trapezium )

c The quadrilateral that has 4 equal sides and 4 right angles is a .....  
 ( rectangle or parallelogram or rhombus or square )

d The quadrilateral that has only one pair of parallel sides is a .....  
 ( rectangle or parallelogram or rhombus or trapezium )

## 2 Complete the following:

a The rectangle has ..... right angles.

b The square has ..... equal sides.

c The rhombus has ..... equal sides.

d The ..... is a parallelogram with 4 right angles.

e The ..... is a rectangle with 4 equal sides.

f The ..... is a rhombus with 4 right angles.

# Unit

## 13

# Angles of a Circle



### Concept

## 13.1

### Breaking the Circle Into Angles

#### Lesson 1

#### The Circle and the Degrees

##### Learning Objective:

By the end of this lesson, the student will be able to:

- Explain the relationship between circles and angle measurement.

#### Lesson 2

#### Measuring Angles Using a Circle Model

##### Learning Objectives:

By the end of this lesson, the student will be able to:

- Identify angle measurements on a circle model.
- Relate fractions of a circle to angle measurements.

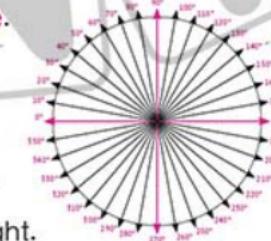


# Lesson 1

## The Circle and the Degrees

### Unit of Angle Measurement

When a circle is divided into 360 equal parts (sectors), each part represents an angle of one degree.



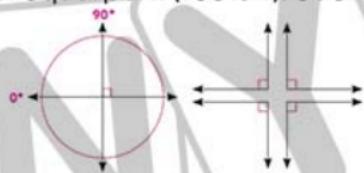
#### Degree:

- It is the unit of angle measurement and is expressed by a small circle "°" written above the number on the right.

**Ex.**  $60^\circ$ ,  $75^\circ$ ,  $83^\circ$ ,  $152^\circ$ ,  $180^\circ$

#### Right Angle:

- When dividing a circle into four equal parts (sectors), each part represents a right angle, as  $360 \div 4 = 90$ .
- The measure of a right angle = 90 degrees, or  $90^\circ$ .



#### Straight Angle

A semicircle:

$$360 \div 2 = 180^\circ$$

Straight angle



#### Acute Angle

Between  $0^\circ$  and  $90^\circ$

$0^\circ$

Acute angle

Right angle  $90^\circ$



#### Obtuse Angle

Between  $90^\circ$  and  $180^\circ$

Right angle  $90^\circ$

Obtuse angle

Straight angle  $180^\circ$

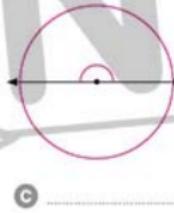
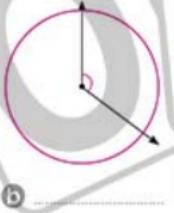
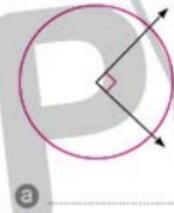


## 1 Write the type of angle based on each measurement:

a  $37^\circ$  : .....  
 c  $89^\circ$  : .....  
 e  $90^\circ$  : .....

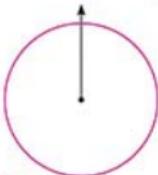
b  $95^\circ$  : .....  
 d  $180^\circ$  : .....  
 f  $91^\circ$  : .....

## 2 Write the angle type:

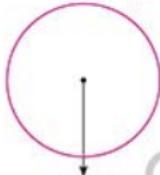


## 3 Draw:

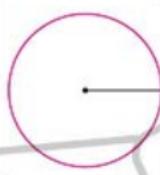
a A straight angle



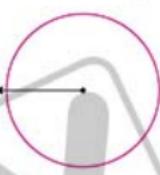
b A right angle



c An obtuse angle



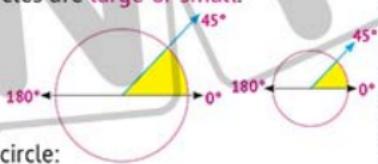
d An acute angle



## Notes:

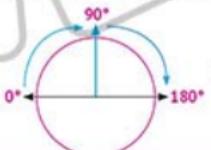
- The angles drawn on the circle remain the same, and it doesn't matter if the circles are large or small.

Ex. • The size of the circle changed, but the angle between the two rays did not.

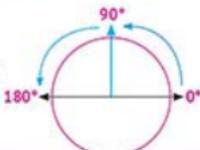


- There are two directions they can go on a circle:

Clockwise rotation



Counterclockwise rotation



4 Move from  $0^\circ$  in the given direction and draw a right angle, then write  $90^\circ$  and  $180^\circ$  on each circle:

a Clockwise

 $0^\circ$ 

b Counterclockwise

 $0^\circ$ 

c Clockwise

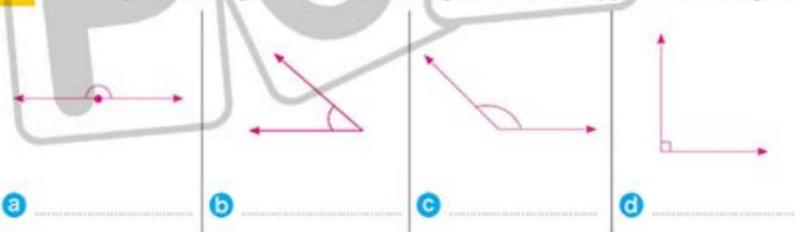
 $0^\circ$ 

10

1 Complete the following:

- The acute angle measures between ..... and .....  $^\circ$
- The obtuse angle measures between ..... and .....  $^\circ$
- The measure of a right angle is .....  $^\circ$
- The measure of a straight angle is .....  $^\circ$
- The type of an angle measures  $72^\circ$  is ..... .
- Half of a circle measures .....  $^\circ$

2 Classify each angle of the following: (Write the type of the angle)



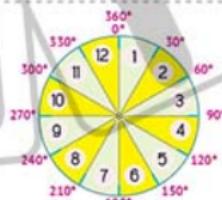
Lesson  
2

## Measuring Angles Using a Circle Model

## Dividing the Circle Into Angles

- When a circle is divided into 12 equal parts, the measure of the angle representing each part is  $30^\circ$ .

$$(360^\circ \div 12 = 30^\circ)$$



## Angles on a Circle

1 part

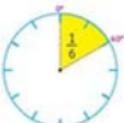
$$30^\circ$$



$$\frac{1}{12} \text{ circle}$$

2 parts

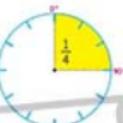
$$2 \times 30 = 60^\circ$$



$$\frac{2}{12} = \frac{1}{6} \text{ circle}$$

3 parts

$$3 \times 30 = 90^\circ$$



$$\frac{3}{12} = \frac{1}{4} \text{ circle}$$

4 parts

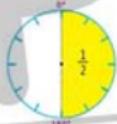
$$4 \times 30 = 120^\circ$$



$$\frac{4}{12} = \frac{1}{3} \text{ circle}$$

6 parts

$$6 \times 30 = 180^\circ$$



$$\frac{6}{12} = \frac{1}{2} \text{ circle}$$

8 parts

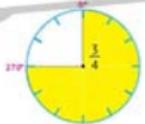
$$8 \times 30 = 240^\circ$$



$$\frac{8}{12} = \frac{2}{3} \text{ circle}$$

9 parts

$$9 \times 30 = 270^\circ$$



$$\frac{9}{12} = \frac{3}{4} \text{ circle}$$

12 parts

$$12 \times 30 = 360^\circ$$



$$\frac{12}{12} = 1 \text{ circle}$$

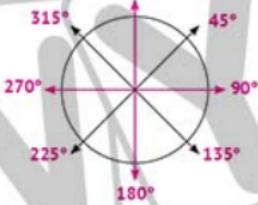
• **Benchmark angles on a circle:**

A benchmark is a measurement that is helpful for comparisons.

• **Benchmark angles measurements:**

As shown in the opposite figure:

$0^\circ$ ,  $45^\circ$ ,  $90^\circ$ ,  $135^\circ$   
 $180^\circ$ ,  $225^\circ$ ,  $270^\circ$ ,  $315^\circ$



1 Write what the **shaded part** represents in each of the following:

	a	b	c	d	e	f
Fraction	—	—	—	—	—	—
Angle	0°	0°	0°	0°	0°	0°

2 Color the circle model according to the fraction shown and write the measure of the angle it represents.

a  $\frac{2}{3}$



b  $\frac{2}{12}$



c  $\frac{3}{4}$



3 Color the circle model according to the measure of the angle shown and write the fraction it represents:

a  $90^\circ$



b  $120^\circ$



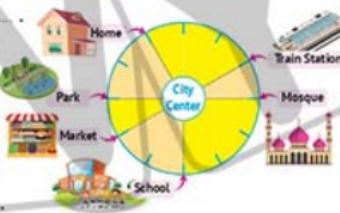
c  $210^\circ$



## Applications of Geometry and Measurement

4 Hussam wandered from one place to another, passing through the city center. Estimate the angles through which he walked into the city. Calculate the angles **clockwise**.

- From home to the train station: \_\_\_\_\_
- From the train station to the mosque: \_\_\_\_\_
- From the mosque to the market: \_\_\_\_\_
- From the mosque to the park: \_\_\_\_\_
- From the school to the train station: \_\_\_\_\_



# Quiz

10

1 Complete the following table:

Number of Parts of the Circle	5	7	.....	.....
Fraction	—	—	$\frac{3}{12}$	$\frac{2}{12}$
Measure of Angle	.....	.....	330°	120°

2 Match each circle model with the fraction that represents the shaded part:



$$\frac{1}{3}$$



$$\frac{1}{6}$$



$$\frac{1}{4}$$



$$\frac{1}{2}$$

# Unit

## 13

# Angles of a Circle



### Concept

## 13.2

### Measuring and Drawing Angles

#### Lessons

#### 3&4

#### Using Protractors. Measuring Angles

#### Learning Objectives:

By the end of these lessons, the student will be able to:

- Identify the parts of angles.
- Name angles.
- Describe the characteristics of a protractor.
- Use a protractor to measure angles.

#### Lessons

#### 5&6

#### Drawing Angles

#### Drawing Angles With a Protractor

#### Learning Objective:

By the end of these lessons, the student will be able to:

- Use a protractor to draw a given angle between 0 and 180 degrees.

#### Lesson

#### 7

#### Classifying Triangles Using Geometric Tools

#### Learning Objectives:

By the end of this lesson, the student will be able to:

- Classify triangles according to the lengths of their sides using the ruler.
- Classify triangles using the measures of their angles using the protractor.



## Lessons 3&amp;4

Using Protractors  
Measuring Angles

Theme 4

## Angle Parts

## Angle:

- It's formed by **two rays** that share a common end point.

## Sides of an angle:

- They're the **two rays** that make up the angle.

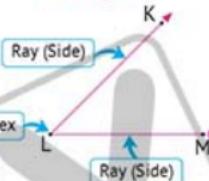
## Angle names:

- The symbol ( $\angle$ ) is used to represent the word "angle".
- The angle vertex is used to name the angle:
- Also, the angle can be named using the **points** on the **two rays** with the vertex in the **middle**:

Ex.

- In the opposite angle:

- The **vertex** of the angle: L
- The **sides** of the angle:  $\overrightarrow{LK}$  and  $\overrightarrow{LM}$
- The **name** of the angle:  $\angle L$  or  $\angle KLM$  or  $\angle MLK$



Investigating Protractors → A protractor is a tool used for measuring angles.



## The center mark

It's used to line up the **vertex** of an angle.

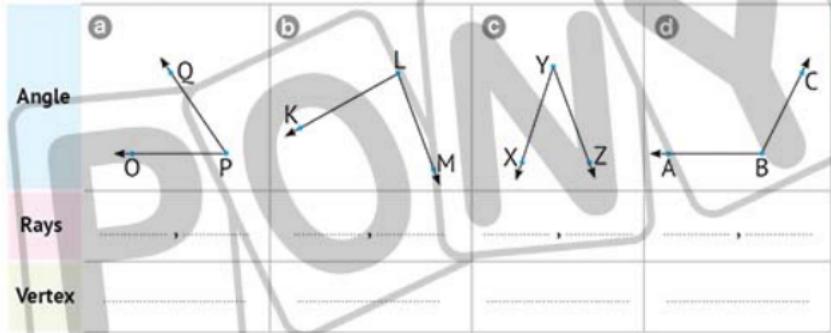
## Scale

The protractor has **two sets of scales**, so we can use the protractor from the right or the left.

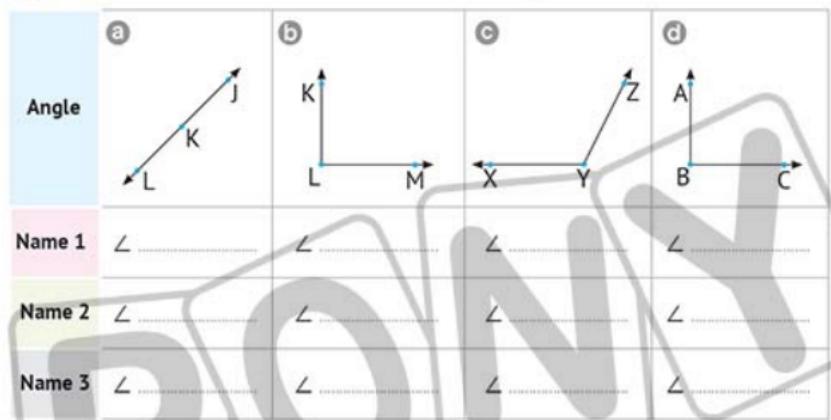
## The zero line

It's the line representing  $0^\circ$  and is used to line up **one of the rays** of the angle so that we can read the angle measurement using the **other ray**.

1 Name each of the following angles using the **rays** and **vertex** of the angle:



2 Write **three different names** for each angle:



3 Complete using the following figure:

Ray (1): .....

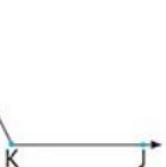
Name (1) of the angle: ..... L

Ray (2): .....

Name (2) of the angle: .....

Vertex: .....

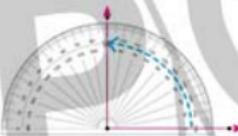
Name (3) of the angle: .....



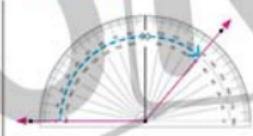
## Using a Protractor to Measure Angles

Place the protractor on the angle to be measured:

- Line up the **center mark** with the **vertex** of the angle.
- Make sure that the **zero line** of the protractor is lined up with **one of the angle's rays**.
- Look at where the angle's **other ray** passes through the protractor.



Angle measure =  $90^\circ$   
Note that it is measured from the right.



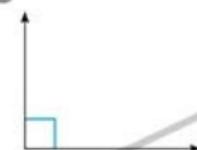
Angle measure =  $130^\circ$   
Note that it is measured from the left.



Angle measure =  $70^\circ$   
Note that it is measured from the right.

4 Classify the angle as **acute**, **obtuse**, or **right**. Then, use a protractor to find the angle measurement:

a



Type: \_\_\_\_\_

Measure: \_\_\_\_\_

b



Type: \_\_\_\_\_

Measure: \_\_\_\_\_

c



Type: \_\_\_\_\_

Measure: \_\_\_\_\_

d



Type: \_\_\_\_\_

Measure: \_\_\_\_\_

e



Type: \_\_\_\_\_

Measure: \_\_\_\_\_

f



Type: \_\_\_\_\_

Measure: \_\_\_\_\_

Lessons  
5&6Drawing Angles  
Drawing Angles With a Protractor

## Drawing Angles with a Protractor

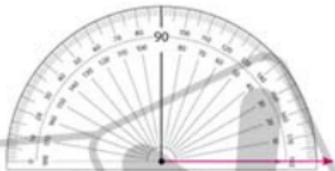
Ex.

- Use a protractor to draw an angle of  $82^\circ$ .

1 Draw a **point (vertex)** and a ray starting at this point and extending in **one direction**.



2 Align the point (vertex) with the **center mark** and line up the ray with the **zero line**.

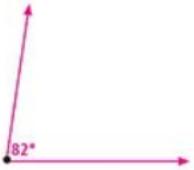


3 Determine which **scale** to use. Think about the **type of angle** being drawn and the **direction of the ray**.



4 Find the **angle measurement** and draw a **small point** at that mark.

5 Remove the protractor and use the straight edge to connect the **vertex** and the **point** you marked.



1 Use what you know about **acute**, **obtuse**, **right**, and **straight** angles to draw each angle without using a protractor:

a  $80^\circ$ b  $40^\circ$ c  $120^\circ$ d  $150^\circ$ e  $90^\circ$ f  $170^\circ$ 

2 Draw the following angles using a **protractor**:

a  $65^\circ$ b  $50^\circ$ c  $120^\circ$ d  $90^\circ$ e  $180^\circ$ f  $165^\circ$

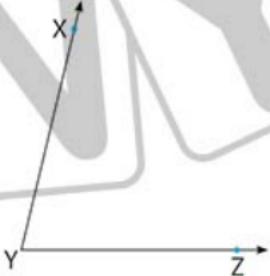


1 Draw the angle ABC of  $120^\circ$ , then complete:

- The name of the angle is  $\angle \dots$  or  $\angle \dots$  or  $\angle \dots$
- The vertex of the angle is  $\dots$ .
- The rays (sides) of the angle are  $\dots$  and  $\dots$ .
- The type of the angle is  $\dots$

2 Measure the following angle, then complete:

- The name of the angle is  $\angle \dots$  or  $\angle \dots$  or  $\angle \dots$
- The vertex of the angle is  $\dots$ .
- The rays (sides) of the angle are  $\dots$  and  $\dots$ .
- The measure of the angle is  $\dots$
- The type of the angle is  $\dots$

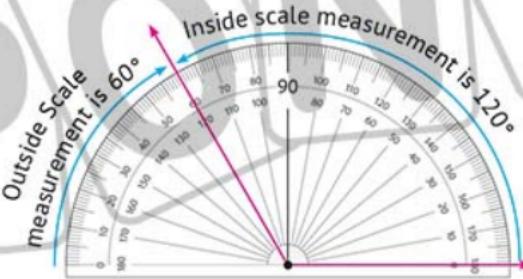


Lesson  
7

Theme 4

## Classifying Triangles Using Geometric Tools

## Inside and Outside Scale Measurement



- Inside scale measurement is  $120^\circ$ .
- Outside scale measurement is  $60^\circ$ .
- Inside measurement makes sense because the type of angle is obtuse angle.

1 Use the protractor to measure the angle. Record both numbers on the protractor scale. Explain which measurement makes sense for an angle and why:

a

- 1 Inside scale measurement is .....  $^\circ$ .
- 2 Outside scale measurement .....  $^\circ$ .
- 3 ..... scale measurement makes sense because the type of the angle is ..... .

b

- 1 Inside scale measurement is .....  $^\circ$ .
- 2 Outside scale measurement .....  $^\circ$ .
- 3 ..... scale measurement makes sense because the type of the angle is ..... .

## Classifying Triangles

## By Side

Equilateral Triangle

3 equal sides

Isosceles Triangle

2 equal sides

Scalene Triangle

no equal sides

## By Angles

Acute Triangle

3 acute angle

Right Triangle

1 right angle

Obtuse Triangle

1 obtuse angle

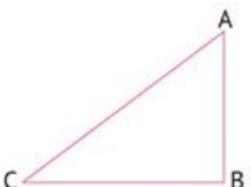
In the opposite figure  $\triangle ABC$ :

## 1 By using a ruler:

$$AB = 3 \text{ cm}, \quad BC = 4 \text{ cm}, \quad AC = 5 \text{ cm}$$

(All sides are different in length).

- So, the type of triangle by the length of its side is (Scalene Triangle)



## 2 By using protractor:

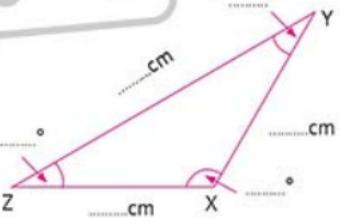
Measure of  $\angle A = 54^\circ$  (Acute angle)Measure of  $\angle B = 90^\circ$  (Right angle), Measure of  $\angle C = 36^\circ$  (Acute angle)

- So, the type of triangle by the measure of its angles is (Right Triangle).

## 2 Use the geometric tools to complete:

a 1 The type of the triangle by the length of its sides is

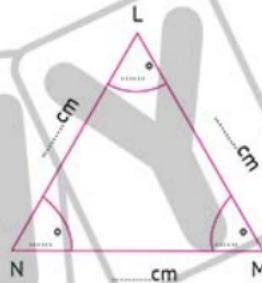
2 The type of the triangle by the measure of its angles is



## Applications of Geometry and Measurement

**b** 1 The type of the triangle by the length of its sides is

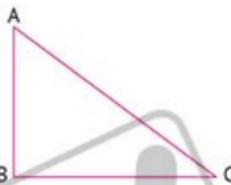
**2** The type of the triangle by the measure of its angles is



10

**1** Use the geometric tools to complete:

**a**  $AB = \dots$  cm,  $BC = \dots$  cm,  
 $AC = \dots$  cm.



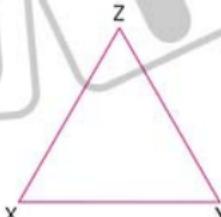
**b** The type of the triangle by the length of its sides is .....

**c** Measure of  $\angle A = \dots$ , measure of  $\angle B = \dots$ , measure of  $\angle C = \dots$

**d** The type of the triangle by the measure of its angles is .....

**2** Use the geometric tools to complete:

**a**  $XY = \dots$  cm,  $YZ = \dots$  cm,  
 $XZ = \dots$  cm.



**b** The type of the triangle by the length of its sides is .....

**c** Measure of  $\angle X = \dots$ , measure of  $\angle Y = \dots$ , measure of  $\angle Z = \dots$

**d** The type of the triangle by the measure of its angles is .....

# PONY

سلسلة كتب الأستاذ

# Math

Prepared by:

Mohamed Nasredin

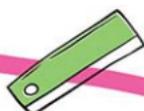
Exercises Book,  
Final Revision,  
& Exams

Revised by:

Amr Madany  
Attia Ibrahim Assad  
Ahmed Nassr

Primary

Second Term



# Theme 3

## Fractions, Decimals, and Proportional Relationships



Theme Units:

### Unit 9 Fractions

Concept 9.1: Composing and Decomposing Fractions

Concept 9.2: Comparing Fractions

Concept 9.3: Multiplication and Fractions

### Unit 10 Decimals

Concept 10.1: Understanding Decimals

Concept 10.2: Decimals and Fractions

Concept 10.3: Operations on Decimals

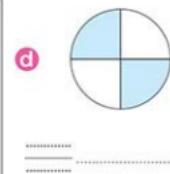
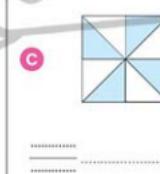
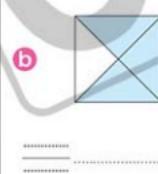
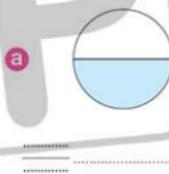
### Unit 11 Data With Fractions

Concept 11.1: Creating and Analyzing Graphs

## Concept 9.1 Composing and Decomposing Fractions

## Lessons 1–3

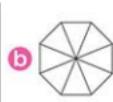
1 Write the fraction of the shaded parts in fraction and word forms:



2 Color the part representing the fraction shown:



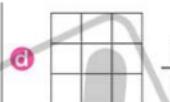
Five-sixths



Three-eighths

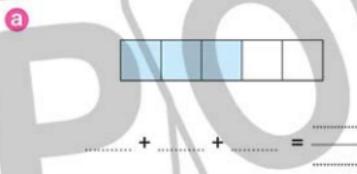


$\frac{7}{10}$

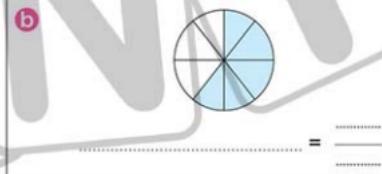


$\frac{2}{9}$

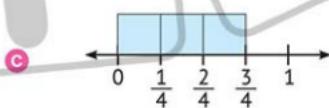
3 Write an equation using unit fractions to show how to compose the fraction representing the following models:



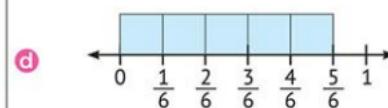
$$+ \quad + \quad = \quad \dots$$



$$= \quad \dots$$



$$= \quad \dots$$



$$= \quad \dots$$

## 4 Complete:

a  $\frac{1}{3} + \frac{1}{3} = \dots$

c  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \dots$

e  $\frac{1}{2} + \frac{1}{2} = \dots$

g  $\frac{4}{5} = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

i  $\frac{3}{8} = \underline{\quad} + \underline{\quad} + \underline{\quad}$

k  $\frac{2}{6} = \underline{\quad} + \underline{\quad}$

m  $\frac{5}{5} = \dots$

p  $\frac{8}{\dots} = 1$

s Five-..... = 1

b  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \dots$

d  $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \dots$

f  $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \dots$

h  $\frac{4}{7} = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

j  $\frac{5}{9} = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

l  $\frac{3}{5} = \underline{\quad} + \underline{\quad} + \underline{\quad}$

n  $\frac{3}{3} = \dots$

q  $\frac{\dots}{6} = 1$

t  $\dots$ -eighths = 1

o  $\frac{7}{7} = \dots$

r  $\frac{9}{\dots} = 1$

u Three-thirds = .....

5 Decompose the following fractions using **unit fractions**:

a  $\frac{2}{3} = \dots$

c  $\frac{2}{4} = \dots$

e  $\frac{3}{5} = \dots$

g  $\frac{4}{7} = \dots$

i  $1 = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

k  $1 = \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad} + \underline{\quad}$

b  $\frac{3}{4} = \dots$

d  $\frac{4}{5} = \dots$

f  $\frac{5}{6} = \dots$

h  $1 = \underline{\quad} + \underline{\quad} + \underline{\quad}$

j  $1 = \underline{\quad} + \underline{\quad}$

6 Decompose the following fractions in **two different ways**:

a	$\frac{3}{4}$	$\frac{4}{5}$
c	$\frac{5}{7}$	$\frac{5}{8}$
e	$\frac{6}{9}$	$\frac{6}{8}$
g	$\frac{7}{8}$	$\frac{8}{9}$

## 7 Choose the correct answer:

a Five-sevenths = .....  
 $(\frac{5}{7} \text{ or } \frac{7}{5} \text{ or } \frac{5}{12} \text{ or } 35)$

b Three-fifths = .....  
 $(15 \text{ or } \frac{5}{3} \text{ or } \frac{3}{8} \text{ or } \frac{3}{5})$

c  $\frac{4}{9} =$  .....  
 (4 fifths or 4 ninths or 9 fourths or 9 fifths)

d .....-sixths =  $\frac{4}{6}$   
 (Six or Four or Nine or Ten)

e Seven- ..... =  $\frac{7}{9}$   
 (sevenths or halves or ninths or eighths)

f.  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$

g.  $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} =$

h.  $\frac{3}{5} + \frac{3}{5} =$

i.  $\frac{1}{7} + \frac{3}{7} =$

j.  $\frac{3}{8} + \frac{5}{8} =$

k.  $\frac{2}{10} + \frac{2}{10} + \dots = \frac{9}{10}$

l.  $\frac{1}{\dots} = 1$

m. Five-fifths =

( $\frac{3}{15}$  or  $\frac{3}{5}$  or  $\frac{1}{15}$  or  $\frac{1}{5}$ )

( $\frac{4}{8}$  or  $\frac{4}{2}$  or  $\frac{1}{8}$  or  $\frac{1}{2}$ )

( $\frac{6}{10}$  or  $\frac{3}{5}$  or  $\frac{6}{5}$  or  $\frac{3}{5}$ )

( $\frac{4}{7}$  or  $\frac{2}{7}$  or  $\frac{4}{14}$  or  $\frac{2}{14}$ )

( $\frac{8}{8}$  or  $\frac{2}{5}$  or  $\frac{3}{5}$  or  $\frac{2}{8}$ )

( $\frac{4}{10}$  or  $\frac{5}{5}$  or  $\frac{4}{20}$  or  $\frac{5}{10}$ )

( $\frac{1}{4}$  or  $\frac{4}{1}$  or  $\frac{4}{4}$  or  $4$ )

(1 or  $\frac{5}{10}$  or  $\frac{1}{5}$  or  $5 \times 5$ )

8. Read the following problems, then draw a **model** and write an **equation** using **unit fractions** to show your answer:

a. Hossam wants to fill a  $\frac{5}{6}$  liter juice bottle using a cup that holds  $\frac{1}{6}$

liter of juice. How many times will Hossam need to fill the cup to fill the bottle?

b. Samah has a pizza divided into 8 equal pieces. She ate a part of it and 2 pieces were left. How many pieces did Samah eat?

c. Toka's mother prepared a cake to celebrate her daughter's birthday.

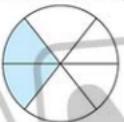
She divided this cake into 9 equal pieces. Toka's friends ate 5 pieces. How many pieces of cake are left?

d Maysa bought 4 pizza pies and divided each pie into 8 equal slices. After Maysa's guests finished eating, there was only one piece left from each pie. How many pieces are left of all the pies?

9 Answer the following:

a Omar ate  $\frac{1}{5}$  of a bag of popcorn, and he and his brother Amir shared what was left in the bag. Write equations showing two methods they can use to divide the remaining popcorn.

b Write the fraction represented by the following models, then compose a fraction and decompose it another way.



$$\text{Fraction} = \frac{1}{6} + \frac{1}{8} + \frac{1}{10} = \frac{1}{\text{ }} = \frac{1}{\text{ }}$$

$$\text{Decomposing the fraction in another way} = \frac{1}{\text{ }} = \frac{1}{\text{ }}$$

10 Omar bought a pizza pie and divided it into 8 equal parts. Omar ate  $\frac{1}{8}$  of the pizza and shared the rest with his brother. Write two equations showing two ways that can be used to divide the remaining pizza pieces.

The fraction representing the remainder: .....

First equation: .....

Second equation: .....

# Assessment

# on Lessons 1–3

## Unit 9

### 1 Choose the correct answer:

a Three-ninths = ..... (  $\frac{3}{9}$  or  $\frac{9}{3}$  or  $\frac{3}{6}$  or 27 )

b .....-eighths =  $\frac{3}{8}$  (Eight or Three or Five or Eleven)

c  $\frac{3}{3}$  = ..... (Third or Two-thirds or Sixth or One whole)

d ..... =  $\frac{1}{3} + \frac{1}{3} + \frac{1}{3}$  (  $\frac{3}{9}$  or  $\frac{1}{9}$  or  $\frac{3}{3}$  or  $\frac{1}{27}$  )

e  $\frac{3}{4}$  = ..... (  $\frac{3}{2} + \frac{3}{2}$  or  $\frac{1}{4} + \frac{1}{4}$  or  $\frac{2}{3} + \frac{1}{1}$  or  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$  )

### 2 Complete the following:

a  $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$  ..... b Seven-ninths = \_\_\_\_\_

c Five-fifths = ..... = ..... (Word Form)

d  $\frac{5}{7} =$  ..... (Word Form)

e  $\frac{6}{9} =$  ..... + ..... + ..... + ..... + ..... (Word Form)

### 3 Answer the following:

There are **two** identical chocolates, each divided into **4 equal** pieces; Hossam ate **3** of the first, and Tamer ate **2** of the second. How many pieces do they have left? Draw a **model** for your solution, and write an **equation** using **unit fractions**.

## Lesson 4

## 1 Complete using the following words:

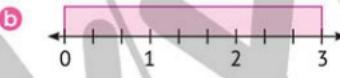
proper fraction, improper fraction, mixed number, whole number

a  $\frac{3}{4}$  is a/an ..... b  $\frac{5}{3}$  is a/an .....  
 c  $3\frac{1}{4}$  is a/an ..... d 12 is a/an .....  
 e  $\frac{15}{5}$  is a/an ..... f  $\frac{16}{5}$  is a/an .....  
 g  $5\frac{2}{7}$  is a/an ..... h  $\frac{3}{9}$  is a/an .....  
 i Three-eighths is a/an ..... j Eight-thirds is a/an .....  
 k Sixty-one is a/an ..... l Two and five-ninths is a/an .....

## 2 Complete:



$$\frac{3}{4} = \dots$$



$$\frac{8}{10} = \dots$$



$$\frac{5}{6} = \dots$$



$$\frac{5}{8} = \dots$$

e  $\frac{15}{3} = \dots$  f  $\frac{\underline{\hspace{1cm}}}{5} = 1$

g  $\frac{\underline{\hspace{1cm}}}{3} = 3$

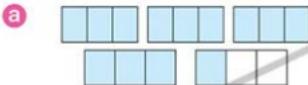
h  $\frac{4}{4} = \dots$

i  $\frac{14}{\underline{\hspace{1cm}}} = 7$  j  $\frac{45}{\underline{\hspace{1cm}}} = 9$

k  $\frac{12}{4} = \dots$

l  $\frac{\underline{\hspace{1cm}}}{3} = 1$

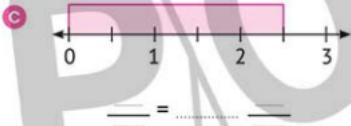
## 3 Convert the improper fractions into mixed numbers:



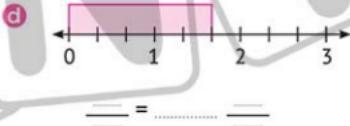
$$\frac{6}{3} = \dots \dots$$



$$\frac{4}{3} = \dots \dots$$



$$\frac{1}{3} = \dots \dots$$



$$\frac{1}{3} = \dots \dots$$

$$\text{e} \frac{12}{5} = \dots \dots$$

$$\text{i} \frac{16}{5} = \dots \dots$$

$$\text{f} \frac{18}{4} = \dots \dots$$

$$\text{j} \frac{21}{5} = \dots \dots$$

$$\text{g} \frac{25}{4} = \dots \dots$$

$$\text{k} \frac{65}{6} = \dots \dots$$

$$\text{h} \frac{15}{8} = \dots \dots$$

$$\text{l} \frac{46}{5} = \dots \dots$$

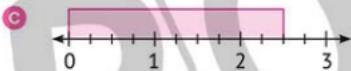
## 4 Convert the mixed numbers into improper fractions:



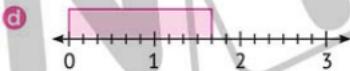
$$\dots \dots = \dots \dots$$



$$\dots \dots = \dots \dots$$



$$\dots \dots = \dots \dots$$



$$\dots \dots = \dots \dots$$

$$\text{e} 5 \frac{2}{3} = \dots \dots$$

$$\text{i} 2 \frac{1}{7} = \dots \dots$$

$$\text{f} 8 \frac{1}{2} = \dots \dots$$

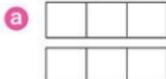
$$\text{j} 3 \frac{4}{5} = \dots \dots$$

$$\text{g} 3 \frac{3}{8} = \dots \dots$$

$$\text{k} 3 \frac{1}{4} = \dots \dots$$

$$\text{h} 6 \frac{3}{4} = \dots \dots$$

$$\text{l} 7 \frac{1}{2} = \dots \dots$$

5 Using the following **models**, complete each of the following:


$$\frac{11}{3} = \dots \frac{\dots}{\dots}$$



$$\frac{17}{5} = \dots \frac{\dots}{\dots}$$

b

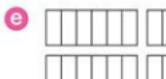


$$2 \frac{4}{6} = \dots$$

d



$$3 \frac{3}{4} = \dots$$

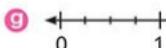


$$\frac{33}{6} = \dots \frac{\dots}{\dots}$$

f



$$\frac{6}{2} = \dots$$



$$\dots = 3$$

h



$$2 \frac{1}{3} = \dots$$

## 6 Complete:

a 
$$\frac{\dots}{3} = 4 \frac{2}{3}$$

b 
$$\frac{45}{\dots} = \dots \frac{\dots}{8}$$

c 
$$\frac{16}{\dots} = 3 \frac{1}{\dots}$$

d 
$$\frac{\dots}{\dots} = 2 \frac{2}{3}$$

e 
$$\frac{31}{\dots} = 7 \frac{\dots}{4}$$

f 
$$\frac{44}{\dots} = \dots \frac{\dots}{7}$$

# Assessment

# on Lesson 4

## Unit 9

### 1 Choose the correct answer:

a  $3 \frac{3}{5}$  is a/an ..... (proper fraction or improper fraction or mixed number or whole number)

b  $3 \frac{1}{5} =$  ..... ( $\frac{16}{5}$  or  $\frac{8}{5}$  or  $\frac{31}{5}$  or  $\frac{4}{5}$ )

c Three and two-fourths = ..... ( $2 \frac{3}{4}$  or  $3 \frac{2}{4}$  or  $4 \frac{3}{4}$  or  $3 \frac{1}{4}$ )

d ..... =  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$  ( $\frac{4}{20}$  or  $\frac{1}{20}$  or  $\frac{1}{5}$  or  $\frac{4}{5}$ )

e ..... =  $\frac{8}{9}$  ( $\frac{4}{6} + \frac{4}{3}$  or  $\frac{4}{5} + \frac{4}{4}$  or  $\frac{4}{9} + \frac{4}{9}$  or  $\frac{8}{4} + \frac{1}{2}$ )

### 2 Complete the following:

a  $4 \frac{2}{3} =$  ..... (As an improper fraction)

b Eight-thirds = ..... = ..... (As an improper fraction)

c  $\frac{35}{7} =$  ..... (As an improper fraction)

d  $\frac{8}{28} =$  ..... (As a mixed number)

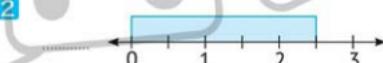
### 3 Answer the following:

a Write the mixed number representing each of the following models:

1



2

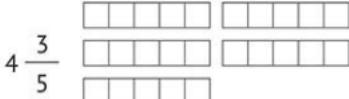


b Shade the models according to the mixed number shown:

1



2



## Lesson

## 5

Theme (3)

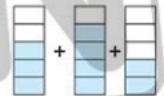
1 Write the fractions representing each of the following models, then find the sum:

a



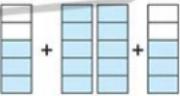
$$\frac{2}{4} + \frac{3}{4} = \frac{5}{4} =$$

b



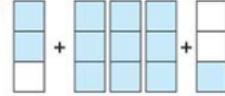
$$\frac{2}{4} + \frac{3}{4} + \frac{2}{4} = \frac{7}{4} =$$

c



$$\frac{1}{3} + \frac{2}{3} + \frac{1}{3} = \frac{4}{3} =$$

d



$$\frac{2}{4} + \frac{3}{4} + \frac{1}{4} = \frac{6}{4} =$$

2 Use the shown models to subtract:

a  $2 - \frac{4}{5} =$



b  $3 - \frac{2}{3} =$



c  $4 - \frac{3}{4} =$



d  $5 - \frac{3}{8} =$



## 3 Find the result:

a  $3 + \frac{3}{4} =$  .....

c  $\frac{7}{9} + \frac{5}{9} + \frac{3}{9} =$  .....

e  $\frac{5}{8} + \frac{4}{8} + \frac{7}{8} + 2 =$  .....

g  $6 - \frac{4}{5} =$  .....

i  $3 - \frac{1}{2} =$  .....

b  $2 + \frac{5}{8} + \frac{7}{8} =$  .....

d  $\frac{5}{7} + \frac{2}{7} + \frac{3}{7} + \frac{6}{7} =$  .....

f  $5 - \frac{3}{8} =$  .....

h  $7 - \frac{3}{5} =$  .....

j  $4 - \frac{3}{4} =$  .....

## 4 Answer the following:

a Nadia is making falafel for breakfast for a large number of guests.

This falafel recipe requires  $\frac{1}{2}$  teaspoon of baking soda to make 10 falafel patties. How many teaspoons of baking soda will she use to make 40 falafel patties?

b Marwa spends  $\frac{3}{4}$  hour doing her Arabic homework,  $\frac{2}{4}$  hour doing the math homework, and one hour doing the English homework. Calculate the time she spends doing her homework.

c Rehab needs a full bottle of frying oil. If she has a bottle  $\frac{3}{5}$  full, How much oil will she need to have a full bottle?

## Fractions, Decimals, and Proportional Relationships

d) Mona was practicing walking for 3 hours. Her brother walked with her for  $\frac{3}{4}$  hour, then her sister walked with her for another  $\frac{3}{4}$  hour and she walked alone the rest of the time.

How long did she spend walking alone?

e) Manar shared two boxes of sweets with her friends. She gave Maha  $\frac{3}{8}$  sweets box. She gave Kamal  $\frac{5}{8}$  sweets box.

How much of the sweets boxes are left with Manar?

5 Choose the correct answer:

a)  $\frac{5}{5} =$  ..... (2 or 5 or 1 or 10)

b)  $2\frac{3}{4} =$  ..... (  $\frac{11}{4}$  or  $\frac{3}{10}$  or  $\frac{23}{4}$  or  $\frac{3}{8}$  )

c)  $\frac{15}{4} =$  ..... (  $\frac{3}{4}$  or 5  $\frac{1}{4}$  or 1  $\frac{5}{4}$  or  $3\frac{3}{4}$  )

d)  $3\frac{3}{7} =$  ..... (  $\frac{5}{7} - \frac{1}{7}$  or  $\frac{7}{3}$  or  $\frac{3}{7} + \frac{3}{7}$  or  $3 + \frac{3}{7}$  or  $\frac{3}{7} + \frac{3}{7}$  )

e)  $\frac{6}{8} =$  ..... (  $6 + 8$  or  $\frac{3}{4}$  or  $\frac{3}{4}$  or  $\frac{4}{5}$  or  $\frac{2}{3}$  or  $\frac{2}{8}$  or  $\frac{2}{8} + \frac{2}{8}$  )

f)  $5\frac{3}{4}$  is a/an ..... (proper fraction or improper fraction or mixed number or whole number)

g) ..... is an improper fraction.

(  $\frac{3}{8}$  or  $3\frac{1}{8}$  or  $3$  or  $\frac{8}{3}$  )

# Assessment

# on Lesson 5

## Unit 9

### 1 Choose the correct answer:

a  $\frac{12}{6} =$  ..... (6 or 12 or 2 or 126)

b  $\frac{47}{5} =$  ..... (4  $\frac{7}{5}$  or 9  $\frac{2}{5}$  or 2  $\frac{9}{5}$  or 2  $\frac{5}{9}$ )

c  $3 + \frac{1}{4} + \frac{3}{4} =$  ..... (3  $\frac{3}{4}$  or 4  $\frac{3}{4}$  or 3  $\frac{4}{8}$  or 4)

d  $5 - \frac{2}{3} =$  ..... (5  $\frac{1}{3}$  or 4  $\frac{2}{3}$  or 4  $\frac{1}{3}$  or 5  $\frac{2}{3}$ )

e  $\frac{3}{9} + \frac{3}{9} + \frac{3}{9} =$  ..... (1 or  $\frac{9}{27}$  or  $\frac{3}{27}$  or  $\frac{27}{9}$ )

### 2 Complete the following:

a  $7 = \frac{\dots}{5}$

b  $3 \frac{3}{\dots} = \frac{24}{\dots}$

c  $\frac{3}{9} + \frac{7}{9} + \frac{8}{9} =$  ..... (d)  $5 - \frac{5}{8} =$  ..... (8)

e  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$  ..... (1)

### 3 Answer the following:

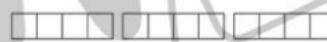
a Find the result using the following models:

1



$$\frac{3}{5} + \frac{4}{5} = \dots$$

2



$$3 - \frac{3}{4} = \dots$$

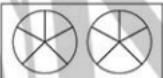
b Manar had 3 LE. She bought a pen for  $\frac{3}{4}$  LE, an eraser for  $\frac{2}{4}$  LE and a ruler for  $\frac{2}{4}$  LE. How much money is left with Manar?

## Lesson 6

Theme 3

## 1 Add using the following models:

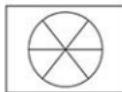
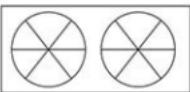
a.  $1 \frac{3}{5} + 2 \frac{1}{5} = \dots$



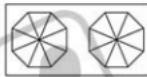
b.  $2 \frac{1}{4} + 2 \frac{3}{4} = \dots$



c.  $1 \frac{5}{6} + \frac{4}{6} = \dots$



d.  $2 \frac{4}{8} + 1 \frac{4}{8} = \dots$

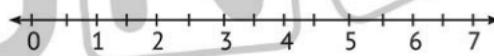


## 2 Add using the following number lines:

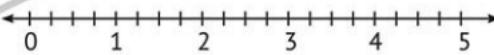
a.  $2 \frac{1}{3} + 1 \frac{2}{3} = \dots$



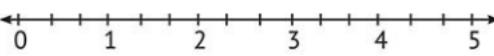
b.  $3 \frac{1}{2} + 2 \frac{1}{2} = \dots$



c.  $1 \frac{3}{4} + 2 \frac{2}{4} = \dots$



d.  $2 \frac{2}{3} + 1 \frac{2}{3} = \dots$



## 3 Add:

a  $2 \frac{3}{4} + 5 =$  .....

c  $2 \frac{3}{8} + 1 \frac{4}{8} =$  .....

e  $2 \frac{6}{7} + \frac{1}{7} =$  .....

g  $3 \frac{5}{6} + \frac{3}{6} =$  .....

b  $4 \frac{3}{5} + 2 \frac{1}{5} =$  .....

d  $4 \frac{4}{5} + 3 \frac{1}{5} =$  .....

f  $3 \frac{5}{8} + 2 \frac{3}{8} =$  .....

h  $4 \frac{3}{7} + 2 \frac{6}{7} =$  .....

## 4 Answer the following using the strategy you prefer:

a Ahmed bought  $1 \frac{1}{2}$  kg of flour,  $2 \frac{1}{2}$  kg of rice, and  $\frac{1}{2}$  kg of sugar.

What is the total mass of the things he bought in kilograms?

.....

b The side length of a square is  $3 \frac{1}{2}$  cm.

What is the perimeter of the square in centimeters?

.....

c Salma bought  $3 \frac{1}{8}$  kg of fruits and  $4 \frac{5}{8}$  kg of vegetables.

What is the total mass of the items she bought?

.....

d Yassin has  $5 \frac{3}{4}$  LE, and he took  $3 \frac{2}{4}$  LE from his father.

What is the total of Yassin's money?

.....

.....

# Assessment

# on Lesson 6

Unit 9

## 1 Choose the correct answer:

a  $4 \frac{1}{2} =$  .....  
 $\frac{9}{2}$  or  $\frac{5}{2}$  or  $\frac{41}{2}$  or  $\frac{9}{8}$

b .....  $= \frac{25}{4}$   
 $2 \frac{5}{4}$  or  $5 \frac{2}{4}$  or  $1 \frac{6}{4}$  or  $6 \frac{1}{4}$

c  $\frac{15}{3}$  is a/an .....  
(proper fraction or improper fraction or mixed number or whole number)

d  $1 \frac{2}{5} + 2 \frac{3}{5} =$  .....  
 $3 \frac{5}{10}$  or  $3 \frac{23}{55}$  or  $4$  or  $\frac{35}{5}$

e  $\frac{6}{8} + \frac{4}{8} =$  .....  
 $1 \frac{4}{8}$  or  $\frac{10}{16}$  or  $1 \frac{10}{8}$  or  $1 \frac{2}{8}$

## 2 Complete:

a  $\frac{23}{5} = 5 \frac{3}{5}$

b  $3 \frac{3}{7} + 2 \frac{4}{7} =$  .....  
 $5 \frac{5}{7}$

c  $4 \frac{3}{5} + 2 \frac{4}{5} =$  .....  
 $7 \frac{1}{5}$

d  $\frac{5}{6} + \frac{5}{6} =$  .....  
 $\frac{10}{6}$

e If the numerator is greater than the denominator, then the fraction is called a/an .....  
(proper fraction or improper fraction or mixed number or whole number)

## 3 Answer the following

a Write the addition equation shown on the number line, then find the result.

Number line:



Equation: ..... + ..... = .....  
(The first two dots are under the first number, the last dot is under the plus sign, and the last two dots are under the equals sign.)

b The length of a rectangle is  $3 \frac{3}{4}$  cm and its width is  $2 \frac{1}{4}$  cm. Find its perimeter.

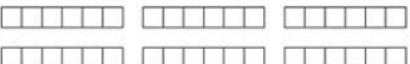
c Fares saves  $3 \frac{3}{5}$  pounds every week. How much money does he save in 3 weeks?

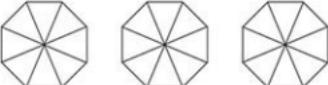
## Lesson 7

## 1 Subtract using the following models:

a.  $5 - 2 \frac{3}{8} =$  ..... 

b.  $3 \frac{1}{4} - 2 \frac{3}{4} =$  ..... 

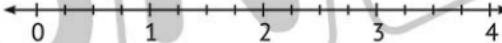
c.  $5 \frac{4}{6} - 3 \frac{2}{6} =$  ..... 

d.  $2 \frac{5}{8} - \frac{7}{8} =$  ..... 

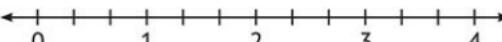
e.  $3 \frac{1}{2} - 2 =$  ..... 

## 2 Subtract using the following number lines:

a.  $3 \frac{1}{5} - \frac{4}{5} =$  ..... 

b.  $4 \frac{3}{4} - 1 \frac{1}{4} =$  ..... 

c.  $2 \frac{5}{6} - 1 \frac{3}{6} =$  ..... 

d.  $4 - 2 \frac{2}{3} =$  ..... 

e.  $6 \frac{1}{2} - 3 =$  ..... 

## 3 Subtract:

a  $4 \frac{3}{4} - 1 \frac{2}{4} =$  .....

c  $8 - 5 \frac{3}{8} =$  .....

e  $6 \frac{3}{8} - 1 \frac{5}{8} =$  .....

g  $6 \frac{5}{8} - 3 =$  .....

i  $6 \frac{3}{5} - 1 \frac{3}{5} =$  .....

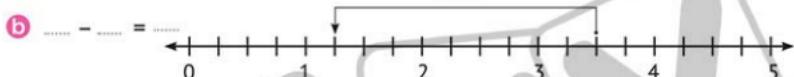
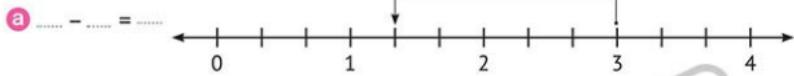
b  $5 \frac{6}{7} - 2 \frac{3}{7} =$  .....

d  $9 - 1 \frac{3}{7} =$  .....

f  $5 \frac{1}{4} - 2 \frac{3}{4} =$  .....

h  $9 \frac{1}{5} - 2 =$  .....

## 4 Write the subtraction equation shown on the number line, then find the result:



## 5 Answer the following using the strategy you prefer:

a Eyad is baking a cake. If he has  $2 \frac{1}{4}$  kg of butter and the recipe

requires  $1 \frac{2}{4}$  kg of butter, how much butter will he have left?

b) Mahmoud had  $7\frac{1}{4}$  pounds. He spent  $3\frac{1}{4}$  pounds on Sunday,  $2\frac{2}{4}$  pounds on Monday and he spent the rest on Tuesday.

How much money did Mahmoud spend on Tuesday?

c) A  $4\frac{2}{5}$  km long road was paved in three stages.  $1\frac{2}{5}$  km were paved in the first stage,  $1\frac{1}{5}$  km in the second stage and the rest in the third stage.

How long is the paved road in the third stage?

### 6 Complete:

a)  $5\frac{1}{2} - \dots = 2\frac{1}{2}$

b)  $4 - \dots = 1\frac{1}{4}$

c)  $\dots - 2\frac{3}{5} = 2\frac{2}{5}$

d)  $\dots - 2\frac{2}{7} = 3\frac{3}{7}$

e)  $5\frac{3}{4} - \dots = 3$

f)  $4\frac{1}{5} - \dots = 2\frac{4}{5}$

### 7 Choose the correct answer:

a)  $\dots - 2\frac{1}{5} = 2\frac{1}{5}$

(Zero or  $4\frac{2}{10}$  or  $4\frac{2}{5}$  or 5)

b)  $4 - \dots = 3\frac{1}{2}$

( $1\frac{1}{2}$  or  $\frac{1}{2}$  or  $7\frac{1}{2}$  or  $2\frac{1}{2}$ )

c)  $\dots - 2\frac{4}{7} = 2\frac{3}{7}$

(5 or 4 or  $4\frac{7}{14}$  or  $\frac{1}{7}$ )

d)  $2\frac{4}{5} + \dots = 3$

( $1\frac{1}{5}$  or  $1\frac{4}{5}$  or  $\frac{1}{5}$  or  $\frac{4}{5}$ )

e)  $\dots + 3\frac{3}{7} = 5\frac{1}{7}$

( $8\frac{4}{7}$  or  $2\frac{2}{7}$  or  $1\frac{2}{7}$  or  $1\frac{5}{7}$ )

# Assessment

# on Lesson 7

Unit 9

## 1 Choose the correct answer:

a Proper fraction  one whole

(= or > or < or  $\geq$ )

b  $1 \frac{2}{5} + 2 \frac{3}{5} =$

(4 or 3 or 1  $\frac{1}{5}$  or 3  $\frac{1}{5}$ )

c  $7 - 2 \frac{3}{6} =$

(4  $\frac{3}{6}$  or 5  $\frac{3}{6}$  or 9  $\frac{3}{6}$  or 8  $\frac{3}{6}$ )

d  $\frac{4}{7} =$

( $\frac{4}{3} + \frac{4}{4}$  or  $\frac{2}{4} + \frac{2}{3}$  or  $\frac{3}{7} + \frac{2}{7}$  or  $\frac{1}{7} + \frac{1}{7} + \frac{1}{7}$ )

e  $5 \frac{3}{4} =$

( $\frac{8}{4}$  or  $\frac{23}{4}$  or  $\frac{20}{4}$  or  $\frac{53}{4}$ )

## 2 Complete the following:

a  $\frac{21}{4} = 4 \frac{1}{\dots}$

b  $5 - 3 \frac{1}{5} =$

c  $4 \frac{2}{3} - 3 =$

d  $5 \frac{8}{9} - 2 \frac{4}{9} =$

e  $7 \frac{3}{8} - 1 \frac{7}{8} =$

3 Malak had  $8 \frac{3}{4}$  meters of gift wrapping tape, of which she used

$2 \frac{1}{4}$  meters to wrap the first gift and  $1 \frac{2}{4}$  meters to wrap another

gift. What is the length of the remaining tape?

# Assessment on Concept

# 1



First: Choose the correct answer:

1 Three-ninths = .....

(39 or  $\frac{3}{12}$  or  $\frac{9}{3}$  or  $\frac{3}{9}$ )

2  $\frac{5}{7}$  = ..... (Two-fifths or Five-halves or Seven-fifths or Five-sevenths)

3  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} =$  .....

( $\frac{1}{4}$  or  $\frac{3}{4}$  or  $\frac{3}{12}$  or  $\frac{1}{12}$ )

4  $\frac{3}{6} + \frac{3}{6} =$  .....

( $\frac{3}{6}$  or  $\frac{6}{6}$  or  $\frac{3}{12}$  or  $\frac{6}{12}$ )

5  $1 =$  .....

( $\frac{5}{5}$  or 5 or  $\frac{5}{1}$  or  $\frac{1}{5}$ )

6 If the numerator is less than the denominator, then the fraction is called a/an .....

(proper fraction or improper fraction or mixed number or whole number)

7 If the denominator is less than the numerator, then the fraction is called a/an .....

(proper fraction or improper fraction or mixed number or whole number)

8  $3\frac{1}{5} =$  .....

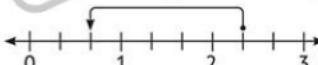
( $\frac{3}{5}$  or  $\frac{15}{5}$  or  $\frac{16}{5}$  or  $\frac{31}{5}$ )

9 The mixed number that is represented by the shaded parts in the following models .....



( $\frac{11}{4}$  or  $2\frac{1}{4}$  or  $2\frac{3}{4}$  or  $\frac{3}{4}$ )

10 The equation that is represented by the following number line is .....



( $2\frac{1}{3} - 1\frac{2}{3}$  or  $1\frac{2}{3} + 2\frac{1}{3}$  or  $3 - \frac{2}{3}$  or  $\frac{2}{3} + 2\frac{1}{3}$ )

## Second: Complete the following:

1  $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$

2  $\frac{6}{9} = \dots + \dots + \dots + \dots + \dots + \dots$

3  $\frac{7}{8} = \frac{3}{8} + \dots$

4  $3 \frac{5}{7} = \dots$

5  $\frac{15}{4} = \dots$

(As an improper fraction)

(As a mixed number)

6  $\frac{3}{8} + \dots = 1 \frac{1}{8}$

7  $\dots + 2 \frac{1}{5} = 4$

8  $7 - \dots = 3 \frac{2}{5}$

9  $\dots - 1 \frac{3}{7} = 2 \frac{1}{7}$

## Third: Answer the following:

1 Find the result using the following number line:

•  $\frac{3}{4} + 1 \frac{1}{4} + 2 \frac{1}{4} = \dots$



2 Hussam trains to play tennis three days a week. If he trains on Saturday for  $2 \frac{1}{3}$  hours, and on Mondays for  $2 \frac{2}{3}$  hours, how long does he need to train on Wednesday to complete 7 hours of training?

## Concept 9.2 Comparing Fractions

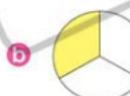
### Lesson

### 8

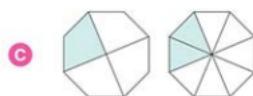
1 Write the fraction that represents the **shaded part(s)** of each model or number line. Then compare using ( $<$ ,  $=$  or  $>$ ):



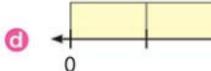
.....  .....



.....  .....



.....  .....



.....  .....



.....  .....



2 Compare using ( $<$ ,  $=$  or  $>$ ):

a  $\frac{3}{5}$    $\frac{3}{7}$

b  $\frac{2}{8}$    $\frac{2}{3}$

c  $\frac{5}{9}$    $\frac{4}{9}$

d  $1$    $\frac{7}{8}$

e  $\frac{3}{9}$    $\frac{3}{4}$

f  $\frac{3}{8}$    $\frac{2}{8}$

g  $1$    $\frac{5}{5}$

h  $\frac{6}{6}$    $\frac{8}{8}$

i  $\frac{5}{4}$    $\frac{3}{4}$

3 Arrange the following in an **ascending** order:

a  $\frac{3}{9}, \frac{5}{9}, \frac{1}{9}, \frac{2}{9}, \frac{4}{9}$  → ..... < ..... < ..... < ..... <

b  $\frac{5}{8}, \frac{5}{6}, \frac{5}{4}, \frac{5}{9}, \frac{5}{7}$  → ..... < ..... < ..... < ..... <

c  $\frac{1}{5}, \frac{1}{9}, 1, \frac{1}{4}, \frac{1}{8}$  → ..... < ..... < ..... < ..... <

d  $\frac{2}{7}, 1, \frac{1}{7}, \frac{5}{7}, \frac{3}{7}$  → ..... < ..... < ..... < ..... <

4 Arrange the following in a **descending** order:

a  $\frac{2}{6}, \frac{1}{6}, \frac{5}{6}, \frac{4}{6}, \frac{3}{6}$  → ..... > ..... > ..... > ..... >

b  $\frac{2}{7}, \frac{2}{9}, \frac{2}{5}, \frac{2}{6}, \frac{2}{3}$  → ..... > ..... > ..... > ..... >

c  $\frac{1}{2}, \frac{1}{5}, 1, \frac{1}{7}, \frac{1}{3}$  → ..... > ..... > ..... > ..... >

d  $\frac{6}{8}, \frac{1}{8}, 1, \frac{3}{8}, \frac{5}{8}$  → ..... > ..... > ..... > ..... >

## 5 Answer the following:

a Each of Ibrahim and Kamal bought a pizza of the same type and size.

Ibrahim ate  $\frac{3}{4}$  of his pizza and Kamal ate  $\frac{3}{5}$  of his pizza.

Who ate more? Represent what they ate on the models, then compare.



Kamal



Ibrahim

b Both Salma and Jana have two copies of the same story.

Salma read the story in  $\frac{3}{5}$  hour and Jana read it in  $\frac{3}{6}$  hour.

Who took longer time to read the story?

c Each of Ahmed, Omar, and Youssef bought a bar of chocolate. Ahmed ate  $\frac{2}{15}$  of his chocolate bar, Omar ate  $\frac{7}{15}$  of his chocolate bar and

Youssef ate  $\frac{4}{15}$  of his chocolate bar. On the next day, Ahmed ate  $\frac{7}{15}$ ,

Omar ate  $\frac{8}{15}$  and Youssef ate  $\frac{10}{15}$  of their chocolate bars.

• Answer the following:

1 How much chocolate did each of them eat?

Ahmed: ..... Omar: ..... Youssef: .....

2 How much chocolate is remaining with each of them?

Ahmed: ..... Omar: ..... Youssef: .....

3 Who has more chocolate?

4 Who has the least amount of chocolate? .....

# Assessment

# on Lesson 8

Unit 9

## 1 Choose the correct answer:

a  $\frac{3}{8}$    $\frac{3}{5}$

b  $\frac{2}{7}$    $\frac{1}{7}$

c  $\frac{5}{8}$    $>$

d  $\dots = 2\frac{1}{3}$

e  $\dots = \frac{13}{5}$

( $<$  or  $=$  or  $>$  or  $\geq$ )

( $<$  or  $=$  or  $>$  or  $\leq$ )

$(\frac{5}{7} \text{ or } \frac{4}{8} \text{ or } \frac{5}{5} \text{ or } \frac{8}{8})$

$(\frac{21}{3} \text{ or } \frac{6}{3} \text{ or } \frac{5}{3} \text{ or } \frac{7}{3})$

$(1\frac{3}{5} \text{ or } 2\frac{3}{5} \text{ or } 3\frac{1}{5} \text{ or } 3\frac{2}{5})$

## 2 Answer the following:

a Arrange the following in an **ascending** order:  $1, \frac{3}{7}, \frac{3}{2}, \frac{3}{9}, \frac{3}{5}$

Ascending order:  $\dots, \dots, \dots, \dots, \dots$

b Arrange the following in a **descending** order:

$\frac{5}{9}, \frac{12}{9}, 1, \frac{3}{9}, \frac{1}{9}$

Descending order:  $\dots, \dots, \dots, \dots, \dots$

c Malak and Jana are practicing swimming. On Sunday, Jana trained for

$\frac{1}{5}$  hour and Malak trained for  $\frac{1}{6}$  hour. On Wednesday, Jana trained

for  $\frac{3}{5}$  hour and Malak trained for  $\frac{3}{6}$  hour.

How long did each of them train and who trained for the longest time?

Jana's training time:  $\dots$

Malak's training time:  $\dots$

$\dots$  trained for the longest time.

## Lesson 9

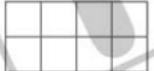
1 Shade the models, then write the equivalent fractions:

a  $\frac{2}{3} = \underline{\quad}$  

c  $\frac{4}{6} = \underline{\quad}$  

e  $\frac{2}{3} = \underline{\quad}$  

g  $\frac{1}{4} = \underline{\quad}$  

b  $\frac{3}{4} = \underline{\quad}$  

d  $\frac{1}{2} = \underline{\quad}$  

f  $\frac{1}{3} = \underline{\quad}$  

h  $\frac{1}{3} = \underline{\quad}$  

2 Complete:

a  $\frac{4}{5} = \frac{8}{\underline{\quad}}$

b  $\frac{2}{3} = \frac{4}{\underline{\quad}}$

c  $2 \frac{3}{4} = 2 \frac{\underline{\quad}}{12}$

d  $1 \frac{1}{2} = 1 \frac{\underline{\quad}}{14}$

e  $\frac{9}{15} = \frac{\underline{\quad}}{5}$

f  $\frac{\underline{\quad}}{8} = \frac{6}{16}$

g  $\frac{4}{\underline{\quad}} = \frac{12}{21}$

h  $\frac{5}{\underline{\quad}} = \frac{10}{18}$

i  $\frac{\underline{\quad}}{4} = \frac{12}{16}$

j  $\frac{8}{12} = \frac{\underline{\quad}}{3}$

k  $\frac{15}{18} = \frac{5}{\underline{\quad}}$

l  $3 \frac{12}{20} = 3 \frac{3}{\underline{\quad}}$

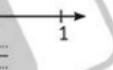
m  $4 \frac{\underline{\quad}}{15} = 4 \frac{2}{3}$

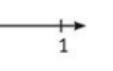
n  $\frac{\underline{\quad}}{30} = \frac{3}{5}$

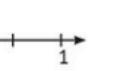
o  $\frac{9}{\underline{\quad}} = \frac{3}{4}$

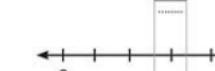
## 3 Use the following number lines to find the equivalent fractions:

a 1  =  = 

b 2  =  = 

c 1  =  = 

d  =  = 

e  =  = 

## 4 Complete:

a  $\frac{1}{2} = \frac{...}{4} = \frac{...}{6} = \frac{4}{...} = \frac{5}{...}$

c  $\frac{1}{4} = \frac{2}{...} = \frac{...}{12} = \frac{4}{...} = \frac{...}{20}$

b  $\frac{1}{3} = \frac{2}{...} = \frac{3}{...} = \frac{...}{12} = \frac{...}{15}$

d  $\frac{1}{5} = \frac{...}{10} = \frac{...}{15} = \frac{4}{...} = \frac{5}{...}$

## 5 Write two equivalent fractions for each of the following:

a  $\frac{3}{4} = \frac{...}{...} = \frac{...}{...}$

b  $\frac{2}{5} = \frac{...}{...} = \frac{...}{...}$

c  $\frac{2}{3} = \frac{...}{...} = \frac{...}{...}$

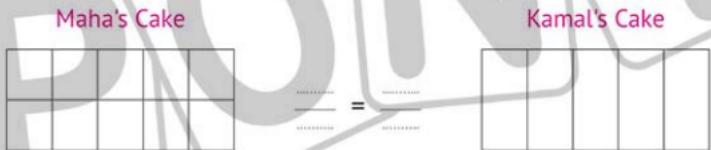
d  $\frac{1}{6} = \frac{...}{...} = \frac{...}{...}$

e  $\frac{5}{5} = \frac{...}{...} = \frac{...}{...}$

f  $\frac{2}{7} = \frac{...}{...} = \frac{...}{...}$

## 6 Answer the following:

a Kamal and Maha have two cakes of the same size. Kamal ate  $\frac{3}{5}$  of his cake. Maha ate a part of her cake equivalent to the part eaten by Kamal. Represent this on the following models and write the equivalent fractions.



b Hisham has a set of flowers consisting of four red flowers, six yellow flowers, and two blue flowers.

Write the fraction that represents each type of flower and its equivalent fraction.



1 The fraction representing the red flowers

$$= \frac{\text{---}}{\text{---}} = \frac{\text{---}}{\text{---}}$$

2 The fraction representing the yellow flowers

$$= \frac{\text{---}}{\text{---}} = \frac{\text{---}}{\text{---}}$$

3 The fraction representing the blue flowers

$$= \frac{\text{---}}{\text{---}} = \frac{\text{---}}{\text{---}}$$

c A group of 12 children,  $\frac{1}{4}$  of this group prefers volleyball,  $\frac{2}{4}$  of the group prefers football and  $\frac{1}{4}$  of the group prefers basketball.

1  $\frac{1}{4} = \frac{\text{---}}{\text{---}} = \frac{\text{---}}{12}$

2  $\frac{2}{4} = \frac{\text{---}}{\text{---}} = \frac{\text{---}}{12}$

3 The number of children who prefer volleyball = .....

4 The number of children who prefer football = .....

5 The number of children who prefer basketball = .....

# Assessment

# on Lesson 9

Unit 9

## 1 Complete the following:

a  $\frac{20}{24} = \frac{5}{\dots}$

c  $\frac{3}{\dots} = \frac{2}{\dots} = \frac{1}{3}$

e If  $\frac{3}{2} = \frac{9}{6}$ , then  $\dots = 1\frac{3}{6}$

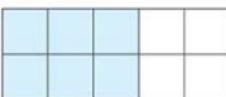
b  $\frac{1}{\dots} = \frac{15}{30}$

d  $3\frac{\dots}{5} = \frac{16}{\dots}$

## 2 Write the fraction representing the shaded part, then shade the equal part in the opposite model and write the equivalent fraction:



$$\frac{\dots}{6} = \frac{\dots}{\dots}$$



## 3 Answer the following:

a Jana had a pie divided into 8 equal parts. She ate 6 parts of it.

Write the fraction that represents the remaining parts, and write an equivalent fraction to it using the model.



$$\frac{\dots}{8} = \frac{\dots}{\dots}$$



b Match the equivalent fractions:

1  $2\frac{3}{4}$

2  $1\frac{2}{5}$

3  $5\frac{2}{3}$

4  $3\frac{1}{2}$

a  $5\frac{4}{6}$

b  $2\frac{9}{12}$

c  $3\frac{4}{8}$

d  $1\frac{6}{15}$

## Lessons 10&amp;11

1 Match the reference fractions to the fractions:  
(You can match more than one fraction to one reference fraction).

0

 $\frac{1}{2}$ 

1

 $1\frac{1}{2}$ 

2

 $\frac{2}{4}$  $\frac{0}{3}$  $\frac{6}{4}$  $\frac{8}{4}$  $\frac{9}{18}$  $\frac{7}{7}$  $\frac{15}{10}$  $\frac{6}{6}$  $\frac{14}{7}$  $\frac{6}{3}$ 

2 Put each of the following fractions in its position on the number line, then decide if the fraction is closer to 0 or  $\frac{1}{2}$  or 1:

Fraction	Number Line	The Fraction Is Closer to
a $\frac{1}{6}$		0 $\frac{1}{2}$ 1
b $\frac{2}{6}$		0 $\frac{1}{2}$ 1
c $\frac{5}{6}$		0 $\frac{1}{2}$ 1
d $\frac{1}{8}$		0 $\frac{1}{2}$ 1
e $\frac{7}{8}$		0 $\frac{1}{2}$ 1
f $\frac{5}{8}$		0 $\frac{1}{2}$ 1

## 3 Complete:

a.  $\frac{1}{2} = \frac{2}{\text{.....}} = \frac{3}{\text{.....}} = \frac{\text{.....}}{8} = \frac{\text{.....}}{10}$

c.  $2 = \frac{4}{\text{.....}} = \frac{\text{.....}}{3} = \frac{8}{\text{.....}} = \frac{10}{\text{.....}}$

b.  $1 = \frac{2}{\text{.....}} = \frac{3}{\text{.....}} = \frac{\text{.....}}{4} = \frac{\text{.....}}{5}$

d.  $1 \frac{1}{2} = \frac{3}{\text{.....}} = \frac{\text{.....}}{4} = \frac{9}{\text{.....}} = \frac{\text{.....}}{8}$

4 Compare between each two fractions using the unit fraction  $\frac{1}{2}$ :

a.  $\frac{3}{8}, \frac{5}{6}$

$$\begin{array}{c} \frac{1}{2} \quad \boxed{\frac{5}{6}} \longrightarrow \frac{1}{6} = \frac{1}{2} \\ \frac{1}{2} \quad = \quad \frac{3}{8} \longrightarrow \frac{1}{8} \quad \boxed{\frac{1}{2}} \end{array}$$

So,  $\frac{3}{8} \boxed{<} \frac{5}{6}$ 

b.  $\frac{4}{10}, \frac{6}{8}$

$$\begin{array}{c} \frac{1}{2} \quad \boxed{\frac{6}{8}} \longrightarrow \frac{1}{8} = \frac{1}{2} \\ \frac{1}{2} \quad = \quad \frac{4}{10} \longrightarrow \frac{1}{10} \quad \boxed{\frac{1}{2}} \end{array}$$

So,  $\frac{4}{10} \boxed{<} \frac{6}{8}$ 

c.  $\frac{5}{12}, \frac{3}{4}$

$$\begin{array}{c} \frac{1}{2} \quad \boxed{\frac{3}{4}} \longrightarrow \frac{1}{4} = \frac{1}{2} \\ \frac{1}{2} \quad = \quad \frac{5}{12} \longrightarrow \frac{1}{12} \quad \boxed{\frac{1}{2}} \end{array}$$

So,  $\frac{5}{12} \boxed{<} \frac{3}{4}$ 

d.  $\frac{8}{16}, \frac{6}{10}$

$$\begin{array}{c} \frac{1}{2} \quad \boxed{\frac{6}{10}} \longrightarrow \frac{1}{10} = \frac{1}{2} \\ \frac{1}{2} \quad = \quad \frac{8}{16} \longrightarrow \frac{1}{16} \quad \boxed{\frac{1}{2}} \end{array}$$

So,  $\frac{8}{16} \boxed{=} \frac{6}{10}$ 

## 5 Answer the following questions:

a. Nour participates in football training. He shot 14 times towards the goal and succeeded in scoring goals on half of the shots. How many goals did he score?

$$\left( \frac{1}{2} = \frac{\text{.....}}{\text{.....}} \right) \longrightarrow \text{Number of goals} = \text{.....}$$

b Sarah wants to share a pizza **equally** with her brother. She divided the pizza into **20** parts. How many parts will Sarah have?

$$\left( \frac{1}{2} = \frac{\square}{20} \right) \rightarrow \text{Number of parts} = \dots$$

c Nagy went for a **2**-kilometers walk last Saturday with his sister. The distance he covered was measured at every  $\frac{1}{6}$  kilometer. Nagy stopped after  $1\frac{1}{2}$  kilometers waiting for his sister. How many **sixths** of the distance did Nagy cover?

$$\left( 1\frac{1}{2} = \frac{\square}{6} \right) \rightarrow \text{Number of sixths} = \dots$$

d Madiha made **two** pizzas and divided each pizza into **8** pieces. If her sister ate  $1\frac{1}{2}$  of the pizza, how many pieces of pizza did she eat?

$$\left( 1\frac{1}{2} = \frac{\square}{8} \right) \rightarrow \text{Number of pieces} = \dots$$

6 Menna made **two** cakes for her birthday. Her friends ate  $\frac{5}{8}$  of one cake and  $\frac{5}{10}$  of the other one. Which of the two cakes did the friends eat more of? Use the **reference fractions** to solve.

$$\begin{array}{rcl} \frac{1}{2} & = & \frac{\square}{10} \end{array} \rightarrow \frac{5}{10} \quad \begin{array}{rcl} \frac{1}{2} & = & \frac{\square}{8} \end{array} \rightarrow \frac{5}{8}$$

Then:  $\frac{5}{10} \quad \square \quad \frac{5}{8}$

So, Her friends ate more of the ..... cake.

7 Hatem scored in his basketball training 14 goals from 18 shots, while his friend Amir scored 8 goals from 16 shots. Whose goals represent a greater fraction according to their shots?

The fraction of Hatem's goals = .....  


The fraction of Amir's goals = .....  


$$\frac{1}{2} = \frac{\square}{18} \rightarrow \square = \boxed{9}$$

$$\frac{1}{2} = \frac{\square}{16} \rightarrow \square = \boxed{8}$$

$$\frac{1}{2} = \frac{1}{\square}$$

So,  = 

Therefore, ..... goals represent a greater fraction.

8 Arrange the following fractions in **ascending** and **descending** orders.

a)  $\frac{3}{6}$  ,  $\frac{1}{8}$  ,  $\frac{7}{10}$

Ascending order: ..... < ..... < .....

Descending order: ..... > ..... > .....

b)  $\frac{5}{6}$  ,  $\frac{7}{7}$  ,  $\frac{1}{4}$

Ascending order: ..... < ..... < .....

Descending order: ..... > ..... > .....

c)  $\frac{2}{4}$  ,  $\frac{9}{9}$  ,  $\frac{1}{8}$

Ascending order: ..... < ..... < .....

Descending order: ..... > ..... > .....

# Assessment

# on Lessons 10&11

## Unit 9

### 1 Choose the correct answer:

a The fraction that its numerator is **third** its denominator is ..... .

( $\frac{1}{4}$  or  $\frac{1}{3}$  or  $\frac{3}{1}$  or  $\frac{2}{3}$ )

b If  $\frac{5}{10} = \frac{1}{2}$ , then  $\frac{7}{10}$    $\frac{1}{2}$ .

(< or = or > or  $\leq$ )

c  $1\frac{1}{2} =$  ..... .

( $\frac{15}{10}$  or  $\frac{4}{2}$  or  $\frac{11}{2}$  or  $\frac{5}{2}$ )

d The fraction  $\frac{1}{6}$  is closer to ..... .

( $1\frac{1}{2}$  or 1 or  $\frac{1}{2}$  or 0)

e  $\frac{15}{7} =$  ..... .

( $1\frac{5}{7}$  or  $5\frac{1}{7}$  or  $2\frac{1}{7}$  or  $1\frac{2}{7}$ )

### 2 Complete the following:

a In the fraction  $\frac{1}{4}$ , the numerator = ..... the denominator,

and the denominator = ..... the numerator.

b If  $\frac{3}{6} = \frac{1}{2}$  and  $\frac{5}{10} = \frac{1}{2}$ ,

(< or = or >)

then:  $\frac{6}{10}$    $\frac{1}{6}$

c ..... =  $7\frac{1}{4}$

d  $\frac{6}{6} = \frac{2}{3}$

e  $\frac{6}{4} = \frac{3}{\text{.....}} = 3$

# Assessment on Concept 2



First: Choose the correct answer:

1  $\frac{3}{8}$    $\frac{3}{5}$

( $\leq$  or  $<$  or  $=$  or  $>$ )

2  $\frac{8}{9}$    $\frac{4}{9}$

( $\geq$  or  $<$  or  $=$  or  $>$ )

3  $\frac{4}{2}$    $1 \frac{1}{2}$

( $\geq$  or  $<$  or  $=$  or  $>$ )

4  $\frac{5}{8} >$

$\frac{5}{9}$    $\frac{5}{6}$    $\frac{5}{5}$    $\frac{8}{5}$

5  $\frac{1}{2} =$

$\frac{2}{1}$    $\frac{3}{6}$    $\frac{2}{6}$    $\frac{1}{4}$

6 The equivalent fraction of the shaded part in the following model is



$(\frac{2}{5} \text{ or } \frac{3}{4} \text{ or } \frac{6}{8} \text{ or } \frac{2}{4})$

7 In the fraction  $\frac{1}{2}$ , the numerator = ..... the denominator.  
(half or third or twice or 3 times)

8 In the fraction ..... , the denominator = 4 times the numerator.

9 If  $\frac{1}{2} = \frac{4}{8}$ ,  $\frac{1}{2} = \frac{3}{6}$ , then .....

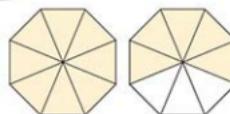
$(\frac{1}{2} \text{ or } \frac{1}{3} \text{ or } \frac{1}{4} \text{ or } \frac{1}{5})$

10  $\frac{12}{8} =$  .....

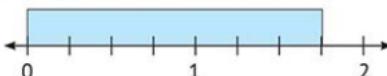
$(\frac{3}{8} = \frac{4}{6} \text{ or } \frac{3}{8} < \frac{4}{6} \text{ or } \frac{3}{8} > \frac{4}{6})$   
 $(1 \frac{1}{2} \text{ or } 1 \frac{2}{8} \text{ or } 1 \frac{8}{8} \text{ or } \frac{10}{4})$

Second: Complete the following:

1 The fraction that represents the shaded parts in the opposite models is .....



2 The fraction that represents the shaded part on following number line is .....



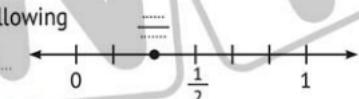
3  $\frac{4}{5} = \frac{\dots}{10} + \frac{6}{\dots}$

4 If  $\frac{16}{6} = \frac{8}{3}$ , then  $2 \frac{4}{6} = \dots$

5 In fraction  $\frac{4}{2}$  a Numerator = ..... the denominator.

b Denominator = ..... the numerator.

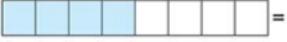
6 The fraction that is represented on the following

number line is closest to ..... 

7 If  $\frac{3}{4} > \frac{1}{2}$ ,  $\frac{5}{12} < \frac{1}{2}$ , then  $\frac{5}{12} < \frac{3}{4}$

8  $\frac{3}{\dots} = \frac{8}{8} = \frac{\dots}{9}$

9 If  $1 \frac{6}{8} = 1 \frac{3}{4}$ , then  $\frac{\dots}{8} = \frac{7}{4}$

10 The shaded part  =  $\frac{\dots}{8}$

### Third: Answer the following:

1 Arrange the following fractions in an **ascending order**:

$$\frac{7}{8}, \frac{8}{16}, \frac{5}{5}, \frac{1}{4}$$

2 Jana ate  $\frac{5}{8}$  of a candy bar, and Marwa ate  $\frac{7}{16}$  of the same type

and size of the candy bar. Who ate more?

(Use benchmark fractions to solve as follows):

$$\frac{1}{2} = \frac{\dots}{8} \xrightarrow{\text{arrow}} \frac{5}{8} \quad \frac{1}{2}$$

$$\frac{1}{2} = \frac{\dots}{16} \xrightarrow{\text{arrow}} \frac{7}{16} \quad \frac{1}{2}$$

So,  $\frac{5}{8} \quad \square \quad \frac{7}{16}$  ..... ate more.

# Concept 9.3 Multiplication and Fractions

## Lessons 12-14

### 1 Multiply:

a  $\frac{4}{7} \times \frac{3}{3} = \dots$

b  $\frac{3}{5} \times \frac{2}{2} = \dots$

c  $\frac{6}{7} \times \frac{4}{4} = \dots$

d  $\frac{5}{8} \times \frac{4}{4} = \dots$

e  $\frac{2}{5} \times \frac{3}{3} = \dots$

f  $\frac{1}{4} \times \frac{5}{5} = \dots$

g  $\frac{7}{7} \times \frac{1}{2} = \dots = \dots$

h  $\frac{4}{4} \times \frac{3}{5} = \dots = \dots$

i  $0 \times \frac{5}{9} = \dots$

### 2 Complete:

a  $\frac{3}{5} \times \dots = \frac{18}{30}$

b  $\frac{4}{5} \times \frac{4}{\dots} = \frac{\dots}{20}$

c  $\dots \times \frac{1}{8} = \frac{2}{16}$

d  $\dots \times \frac{2}{3} = \frac{18}{27}$

e  $\frac{8}{\dots} \times \frac{\dots}{4} = \frac{32}{36}$

f  $\frac{2}{8} \times \frac{4}{\dots} = \frac{\dots}{32}$

### 3 Complete:

a  $\frac{36}{45} = \frac{4}{5}$

$\div 7$

$\div 7$

$\div 7$

$\div 7$

$\div 7$

b  $\frac{24}{64} = \frac{3}{8}$

$\div 6$

$\div 6$

$\div 6$

$\div 6$

$\div 6$

c  $\frac{2}{3} = \frac{18}{27}$

$\times \dots$

$\times \dots$

$\times 4$

$\times 4$

$\times 4$

d  $\frac{3}{5} = \frac{18}{30}$

$\times \dots$

$\times \dots$

$\times 9$

$\times 9$

$\times 9$

4 Complete in the same pattern and write 5 equivalent fractions:

a  $\frac{1}{2} = \frac{2}{4} = \frac{3}{6} = \dots$

b  $\frac{1}{3} = \frac{2}{\dots} = \frac{\dots}{\dots} = \dots$

c  $\frac{2}{3} = \frac{\dots}{6} = \frac{\dots}{\dots} = \dots$

d  $\frac{\dots}{\dots} = \frac{\dots}{12} = \frac{3}{12} = \dots$

5 Note the first fraction in each row, and then circle the equivalent fractions:

Fraction	Equivalent Fractions							
a $\frac{1}{2}$	$\frac{6}{11}$	$\frac{7}{12}$	$\frac{4}{8}$	$\frac{6}{10}$	$\frac{4}{9}$	$\frac{6}{12}$	$\frac{3}{6}$	
b $\frac{2}{3}$	$\frac{4}{10}$	$\frac{7}{15}$	$\frac{6}{9}$	$\frac{5}{5}$	$\frac{4}{6}$	$\frac{8}{12}$	$\frac{1}{4}$	
c $\frac{3}{4}$	$\frac{9}{10}$	$\frac{12}{16}$	$\frac{6}{8}$	$\frac{4}{8}$	$\frac{15}{20}$	$\frac{2}{3}$	$\frac{9}{12}$	
d $\frac{4}{5}$	$\frac{20}{25}$	$\frac{12}{15}$	$\frac{4}{9}$	$\frac{16}{20}$	$\frac{14}{15}$	$\frac{12}{16}$	$\frac{8}{10}$	
e $\frac{1}{6}$	$\frac{4}{12}$	$\frac{4}{24}$	$\frac{2}{12}$	$\frac{5}{30}$	$\frac{3}{18}$	$\frac{2}{10}$	$\frac{1}{4}$	
f $\frac{3}{7}$	$\frac{13}{35}$	$\frac{7}{14}$	$\frac{5}{21}$	$\frac{6}{12}$	$\frac{12}{28}$	$\frac{6}{14}$	$\frac{9}{2}$	

6 Answer the following:

a Hossam has 12 crayons, and  $\frac{2}{3}$  of them are blue. How many blue crayons are there?

..... = .....  $\rightarrow$  Number of blue crayons = .....

**b** Mona made 24 pieces of cake to celebrate Eid Al-Fitr. If  $\frac{3}{4}$  of the cake pieces contain walnuts, how many cake pieces contain walnuts?

$$\dots = \dots \rightarrow \text{Number of cake pieces} = \dots$$

**c** Heba has two cakes of the same size. She divided the first cake into 6 pieces and decorated two pieces in blue. She divided the second cake into 18 pieces. She wants to decorate a part of the second cake with a blue color, it should be equal to the two pieces in the first cake.

How many pieces should she decorate?

$$\dots = \dots \rightarrow \text{Number of pieces} = \dots$$

### 7 Choose the correct answer:

**a**  $\frac{3}{8} \times \dots = \frac{3}{8}$

( $\frac{1}{2}$  or  $\frac{2}{3}$  or  $\frac{5}{5}$  or  $\frac{2}{4}$ )

**b**  $\frac{3}{4} \times \dots = 0$

(1 or  $\frac{4}{3}$  or  $\frac{1}{3}$  or 0)

**c**  $\dots \times \frac{6}{6} = \frac{3}{5}$

( $\frac{3}{5}$  or  $\frac{9}{11}$  or  $\frac{5}{3}$  or  $\frac{1}{2}$ )

**d**  $\frac{3}{8} \times \frac{8}{6} = \dots$

( $\frac{3}{2}$  or  $\frac{3}{8}$  or  $\frac{1}{2}$  or  $\frac{11}{14}$ )

**e**  $\frac{12}{24} = \dots$

(In the simplest form) ( $\frac{1}{2}$  or  $\frac{6}{12}$  or  $\frac{4}{8}$  or  $\frac{3}{6}$ )

**f**  $\frac{16}{48} = \dots$

(In the simplest form) ( $\frac{8}{14}$  or  $\frac{4}{12}$  or  $\frac{2}{6}$  or  $\frac{1}{3}$ )

**g** ..... is the Identity element of Multiplication. (0 or 1 or 2 or 3)

**h**  $\frac{5}{7} \times \dots = 1$

( $\frac{5}{7}$  or 1 or  $\frac{7}{5}$  or  $\frac{1}{5}$ )

# Assessment

# on Lessons 12–14

## Unit 9

### 1 Choose the correct answer:

a  $\frac{3}{5} \times \text{.....} = \frac{3}{5}$

b  $\frac{16}{24} = \text{.....}$  (In the simplest form)

c  $\frac{13}{6} = \text{.....}$

d  $\frac{5}{8} = \frac{15}{\text{.....}}$

e  $\frac{5}{8} \times \boxed{\text{.....}} = \frac{5}{6}$

( $\frac{3}{5}$  or  $\frac{5}{3}$  or  $\frac{3}{3}$  or 0)

( $\frac{2}{3}$  or  $\frac{4}{6}$  or  $\frac{8}{12}$  or  $\frac{1}{2}$ )

( $1\frac{3}{8}$  or  $3\frac{1}{6}$  or  $2\frac{1}{6}$  or  $1\frac{2}{6}$ )

(81 or 42 or 61 or 31)

(< or = or > or  $\geq$ )

### 2 Complete the following:

a  $\frac{3}{8} \times \text{.....} = \frac{9}{24}$

b  $\text{.....} \times \frac{2}{2} = \frac{6}{8}$

c  $\frac{1}{3} = \frac{2}{\text{.....}} = \frac{\text{.....}}{9} = \frac{4}{\text{.....}}$

d  $\frac{12}{36} = \frac{\text{.....}}{3}$

### 3 Answer the following:

a Find the result:

1  $2\frac{3}{8} + 1\frac{2}{8} = \text{.....}$

2  $7\frac{1}{3} - 2\frac{2}{3} = \text{.....}$

b Zena ate  $\frac{1}{4}$  of a pizza. If the pizza was divided into 12 equal pieces,

how many pieces did Zena eat?  $\frac{1}{4} = \frac{\text{.....}}{12}$

The number of pieces Zena ate = .....

## Lesson 15

1 Draw a **bar model** and write the **addition** process and **multiplication** equations for the fraction:

a	$\frac{2}{3}$		$\dots + \dots = \frac{2}{3}$	$\dots \times \dots = \frac{2}{3}$
b	$\frac{3}{4}$			
c	$\frac{4}{5}$			
d	$\frac{3}{5}$			
e	$\frac{3}{6}$			
f	$\frac{5}{6}$			
g	$\frac{4}{7}$			
h	$\frac{4}{8}$			

2 Multiply:

a	$\frac{3}{8} \times 8 = \dots$	b	$\frac{4}{5} \times 7 = \dots$	c	$\frac{1}{4} \times 4 = \dots$
d	$\frac{1}{3} \times 3 = \dots$	e	$\frac{2}{5} \times 3 = \dots$	f	$\frac{3}{4} \times 2 = \dots$
g	$\frac{4}{5} \times 3 = \dots$	h	$\frac{1}{8} \times 2 = \dots$	i	$\frac{1}{7} \times 3 = \dots$
j	$\frac{2}{5} \times 5 = \dots$	k	$\frac{2}{7} \times 3 = \dots$	l	$\frac{3}{10} \times 2 = \dots$

## 3 Complete:

a  $\frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} = \dots \times \frac{1}{6} = \dots$

b  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \dots \times \frac{1}{5} = \dots$

c  $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \dots \times \dots = \dots$

d  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \dots \times \dots = \dots$

e  $5 \times \frac{1}{8} = \dots + \dots + \dots + \dots + \dots = \dots$

f  $4 \times \frac{1}{5} = \dots + \dots + \dots + \dots = \dots$

g  $3 \times \frac{2}{6} = \dots + \dots + \dots = \dots$

h  $3 \times \frac{1}{9} = \dots + \dots + \dots = \dots$

## 4 Find the result in the simplest form:

a  $\frac{5}{8} + \frac{3}{8} = \dots$

b  $\frac{6}{9} + \frac{7}{9} = \dots$

c  $5 + \frac{3}{7} = \dots$

d  $2 \frac{1}{3} + 3 \frac{2}{3} = \dots$

e  $4 \frac{5}{8} + 1 \frac{1}{8} = \dots$

f  $\frac{9}{12} - \frac{3}{12} = \dots$

g  $5 \frac{7}{8} - 3 \frac{5}{8} = \dots$

h  $7 - 3 \frac{1}{4} = \dots$

i  $5 \frac{3}{8} - 3 = \dots$

j  $7 \frac{1}{5} - 2 \frac{4}{5} = \dots$

# Assessment on Lesson 15

Unit 9

## 1 Choose the correct answer:

a  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$

( $4 \times \frac{1}{5}$  or  $5 \times 1$  or  $3 \times \frac{1}{5}$  or  $\frac{1}{5} \times \frac{1}{5}$ )

b  $\frac{3}{6} \times = 1$

(0 or 1 or 2 or 3)

c  $\frac{6}{8} \times = \frac{3}{4}$

(0 or 1 or 2 or  $\frac{3}{4}$ )

d  $\frac{42}{8} =$

( $4\frac{3}{8}$  or  $2\frac{4}{8}$  or  $5\frac{1}{4}$  or  $1\frac{5}{4}$ )

e  $\frac{5}{8} + \frac{1}{8} =$

( $\frac{3}{4}$  or  $\frac{6}{16}$  or  $\frac{4}{8}$  or  $\frac{5}{16}$ )

## 2 Complete the following:

a  $\frac{3}{12} \times 2 = \dots = \dots$

b  $3 \times \frac{2}{7} = \dots + \dots + \dots = \dots$

c  $\frac{4}{7} = \frac{2}{7} + \dots + \dots$

d  $\frac{8}{9} - \frac{3}{9} = \dots$

## 3 Answer the following:

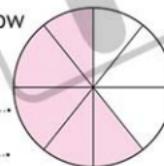
a Write the **addition** and **multiplication** equations to show the **shaded** part of the opposite model.

1 Addition equation:  $\dots$

2 Multiplication equation:  $\dots$

b Zeyad saves  $\frac{3}{4}$  pounds daily.

How much money does he save in 8 days?



# Assessment on Concept 3



Unit 9

First: Choose the correct answer:

1  $\frac{3}{5} \times \frac{2}{3} = \dots$

( $\frac{6}{15}$  or  $\frac{5}{8}$  or  $\frac{2}{15}$  or  $\frac{3}{15}$ )

2  $\frac{8}{9} \times \dots = 8$

(0 or 1 or 2 or 9)

3  $\frac{4}{5} \times \dots = \frac{4}{5}$

(0 or  $\frac{3}{3}$  or  $\frac{4}{5}$  or  $\frac{5}{4}$ )

4  $\frac{2}{3} \times 0 = \dots$

(0 or  $\frac{2}{3}$  or  $\frac{3}{2}$  or  $\frac{3}{3}$ )

5  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \dots$  ( $0 \times \frac{1}{5}$  or  $\frac{1}{5} + \frac{1}{5}$  or  $\frac{1}{5} \times \frac{1}{5}$  or  $5 \times \frac{1}{5}$ )

6  $3 \times \frac{1}{4} = \dots$  ( $3 \times \frac{3}{4}$  or  $3 + \frac{1}{4}$  or  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$  or  $\frac{1}{4} \times \frac{1}{4} \times \frac{1}{4}$ )

7  $\frac{3}{6} = \dots$

( $\frac{6}{6}$  or  $\frac{1}{2}$  or  $\frac{6}{3}$  or  $\frac{3}{3}$ )

8  $\frac{45}{30} = \dots$

( $\frac{3}{2}$  or  $\frac{9}{7}$  or  $\frac{8}{6}$  or  $\frac{9}{8}$ )

9  $9 - \frac{3}{9} = \dots$

( $9 \frac{3}{9}$  or  $9 \frac{6}{9}$  or  $8 \frac{6}{9}$  or  $8 \frac{3}{9}$ )

10  $5 \frac{3}{4} + 2 \frac{1}{4} = \dots$

(8 or 7 or 7  $\frac{2}{4}$  or  $8 \frac{4}{4}$ )

Second: Complete the following:

1  $\frac{32}{48} = \dots$

(In the simplest form)

2  $\dots \times \frac{1}{6} = \frac{4}{30} = \dots$

Assessment on Unit 9

3  $\frac{2}{3} = \frac{4}{\dots\dots\dots} = \frac{6}{\dots\dots\dots} =$

4  $3 \times \frac{1}{5} = \frac{\dots}{\dots} + \frac{\dots}{\dots} + \frac{\dots}{\dots} = \frac{\dots}{\dots}$

5  $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} + \frac{1}{8} = \dots \times \dots =$

6  $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} = \dots \times \dots =$

Third: Answer the following:

1 Complete:

a  $\frac{3}{5} = \frac{9}{15}$

b  $\frac{14}{28} = \frac{2}{4}$

2 Circle the equivalent fractions to  $\frac{3}{4}$ :

$\frac{9}{21}$ ,  $\frac{6}{21}$ ,  $\frac{6}{8}$ ,  $\frac{51}{02}$ ,  $\frac{9}{61}$ ,  $\frac{6}{81}$ ,  $\frac{21}{61}$

3 Write an addition equation and a multiplication equation that express the fraction represented in the opposite model:



a The addition equation:

b The multiplication equation:

4 Ayman painted  $\frac{5}{16}$  of a wall blue. How much of the wall is left to paint?

5 Islam drinks  $\frac{3}{4}$  liters of water three times a day. How much water does

Islam drink per day? .....

# Assessment 1

1

on



First: Choose the correct answer:

1 The fraction that represents the shaded part of the following

model is ..... .



( $\frac{3}{4}$  or  $\frac{4}{3}$  or  $\frac{3}{7}$  or  $\frac{4}{7}$ )

2  $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} =$  .....

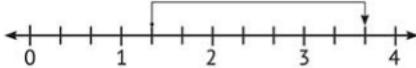
( $\frac{2}{3}$  or  $\frac{2}{9}$  or 2 or  $\frac{6}{9}$ )

3  $3\frac{1}{4}$  is a/an .....

(proper fraction or improper fraction or mixed number or whole number)

4 The addition operation that is represented on the following number line

is ..... .



( $3\frac{2}{3} + 1\frac{1}{3}$  or  $1\frac{1}{3} + 2$  or  $1\frac{1}{3} + 2\frac{1}{3}$  or  $1\frac{1}{3} + 1\frac{1}{3}$ )

5  $\frac{5}{9} >$  .....

( $\frac{6}{9}$  or  $\frac{4}{9}$  or  $\frac{8}{5}$  or  $\frac{5}{8}$ )

Second: Complete the following:

1 Write an equation using unit fractions to show the composition of the fraction shown on the opposite model .....



2 200 Hundreds = ..... Thousands

3  $3\frac{4}{5} =$  .....

(As an improper fraction)

4  $\frac{5}{6} \times$  ..... = 10

5  $\frac{2}{5} = \frac{4}{\dots} = \frac{\dots}{15} = \frac{8}{\dots}$

Assessment on Unit 9

Third: Find the result in the simplest form:

1  $2 \frac{1}{7} + 1 \frac{5}{7} =$  .....

2  $9 - 3 \frac{1}{3} =$  .....

3  $5 \times \frac{3}{5} =$  .....

4  $\frac{3}{4} \times \frac{2}{2} =$  .....

5  $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \frac{3}{5} \times 5 =$  .....

Fourth: Complete using (<, =, or >):

1  $\frac{4}{5} \quad \boxed{\quad} \quad \frac{4}{9}$

2  $\frac{3}{8} \quad \boxed{\quad} \quad \frac{5}{8}$

3  $3 \frac{4}{5} \quad \boxed{\quad} \quad 2 \frac{1}{4}$

4  $\frac{2}{3} \quad \boxed{\quad} \quad 3 \times \frac{2}{9}$

5  $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} \quad \boxed{\quad} \quad \frac{3}{4} \times \frac{3}{3}$

Fifth: Answer the following:

1 Arrange the following in an ascending order:

$$\frac{2}{5}, 1, \frac{4}{5}, \frac{3}{5}$$

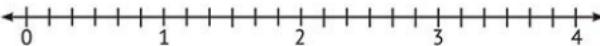
, , , ,

2 Alaa drank  $1 \frac{3}{8}$  liter of water and Azza drank  $1 \frac{5}{8}$  liters of water.

What is the total amount of water that Alaa and Azza drank?

3 Find the result using the following number line:

$$2 \frac{4}{6} - \frac{5}{6} =$$



# Assessment

# 2

on



First: Choose the correct answer:

1 The fraction that is represented on the following number line is ..... .



(2  $\frac{2}{3}$  or 3  $\frac{1}{2}$  or  $\frac{1}{3}$  or 2  $\frac{1}{3}$ )

2  $1 =$  .....  $(\frac{1}{4} + \frac{1}{4} + \frac{1}{4} \text{ or } \frac{4}{4} + \frac{2}{2} \text{ or } \frac{1}{2} + \frac{1}{3} \text{ or } \frac{3}{5} + \frac{2}{5})$

3  $\frac{5}{8}$  is a/an ..... .

(proper fraction or improper fraction or mixed number or whole number)

4  $5 -$  .....  $= 2 \frac{1}{5}$   $(2 \frac{4}{5} \text{ or } 3 \frac{1}{5} \text{ or } 2 \frac{1}{5} \text{ or } 3 \frac{4}{5})$

5  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} =$  .....  $(\frac{4}{4} \times 4 \text{ or } \frac{1}{4} + 4 \text{ or } \frac{4}{4} \times \frac{1}{4} \text{ or } \frac{1}{4} \times 4)$

Second: Complete the following:

1  $\frac{8}{9} = \frac{2}{9} + \frac{2}{9} +$  ..... +

2  $\frac{15}{4} =$  ..... —

3  $\frac{3}{20} = \frac{3}{4}$

4  $\frac{5}{8} +$  .....  $= 1$

5  $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} =$  .....  $\times$  .....  $=$  .....  $=$

Third: Find the result in the simplest form:

1  $\frac{1}{5} + 1 \frac{2}{5} =$  .....

2  $4 \frac{2}{9} - 3 \frac{3}{9} =$  .....

3  $2 \times \frac{3}{8} =$  .....

4  $\frac{3}{2} \times \frac{2}{3} =$  .....

Fourth: Complete using ( $<$ ,  $=$ , or  $>$ ):

1  $\frac{4}{9}$    $\frac{4}{8}$

3  $5 \frac{1}{4}$    $2 \frac{3}{4}$

5  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$    $3 \times \frac{1}{5}$

2  $\frac{2}{5}$    $\frac{3}{5}$

4  $\frac{3}{9} + \frac{3}{9}$    $\frac{2}{3}$

## Fifth: Answer the following:

1 Arrange the following fractions in an **ascending** order:

$\frac{2}{6}, \frac{2}{2}, \frac{2}{5}, \frac{2}{7}$

2 Hossam has 4 loaves of bread. Hossam used  $\frac{3}{4}$  of them to make a sandwich. How much bread is left?3 Find the result using the opposite model:

$1 \frac{3}{4} + 1 \frac{1}{4} =$



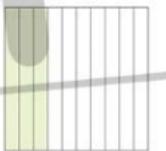
# Unit **10** Decimals

## Concept **10.1** Understanding Decimals

### Lessons **1&2**

**1** Write the **fraction** and **decimal** for the shaded or marked part of each of the following:

a



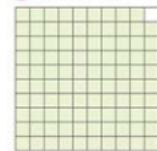
$$\frac{\text{---}}{\text{---}} = \text{.....}$$

b



$$\frac{\text{---}}{\text{---}} = \text{.....}$$

c



$$\frac{\text{---}}{\text{---}} = \text{.....}$$

d



$$\frac{\text{---}}{\text{---}} = \text{.....}$$

e



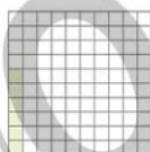
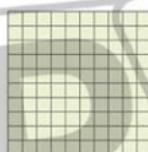
$$\frac{\text{---}}{\text{---}} = \text{.....}$$

f



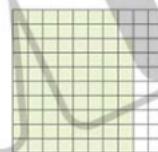
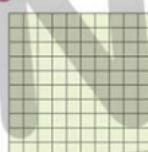
$$\frac{\text{---}}{\text{---}} = \text{.....}$$

g



$$\frac{\text{---}}{\text{---}} = \text{.....}$$

h



$$\frac{\text{---}}{\text{---}} = \text{.....}$$

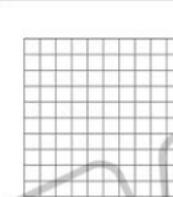
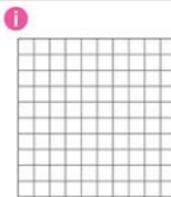
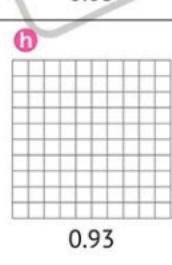
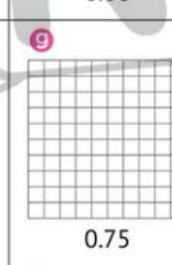
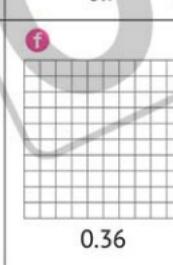
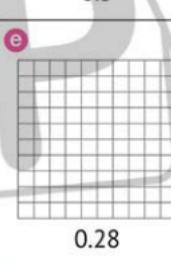
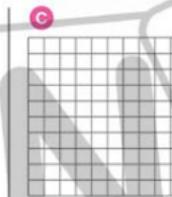
i



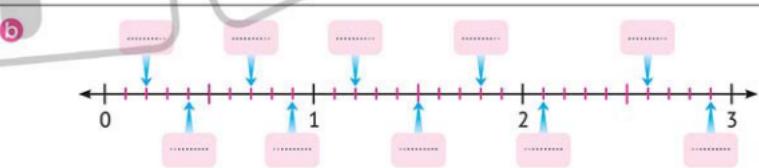
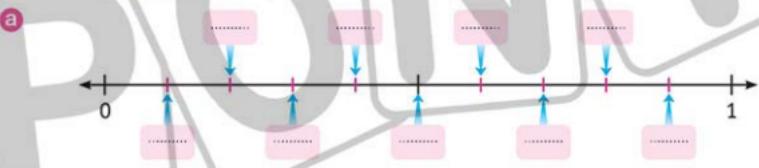
$$\frac{\text{---}}{\text{---}} = \text{.....}$$

Fractions, Decimals, and Proportional Relationships

2 Shade the models to represent the **decimals**:

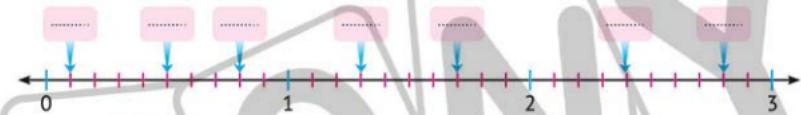


3 Write the **decimals** represented on the following number lines:



## 4 Place the following decimals on the number line:

(2.8 , 2.4 , 1.7 , 1.3 , 0.8 , 0.5 , 0.1)



## 5 Write each of the following fractions and mixed numbers in the decimal form:

a  $\frac{5}{10} =$  .....

b  $\frac{2}{10} =$  .....

c  $\frac{7}{10} =$  .....

d  $\frac{3}{100} =$  .....

e  $\frac{8}{100} =$  .....

f  $\frac{21}{100} =$  .....

g  $2\frac{3}{10} =$  .....

h  $27\frac{1}{10} =$  .....

i  $125\frac{3}{10} =$  .....

j  $7\frac{3}{100} =$  .....

k  $28\frac{9}{100} =$  .....

l  $523\frac{8}{100} =$  .....

m  $8\frac{23}{100} =$  .....

n  $72\frac{22}{100} =$  .....

o  $307\frac{46}{100} =$  .....

## 6 Write each of the following decimals as a fraction or mixed number:

a  $0.9 =$  .....

b  $0.1 =$  .....

c  $0.4 =$  .....

d  $0.06 =$  .....

e  $0.01 =$  .....

f  $0.92 =$  .....

g  $2.4 =$  .....

h  $25.7 =$  .....

i  $414.8 =$  .....

j  $3.08 =$  .....

k  $12.07 =$  .....

l  $107.09 =$  .....

m  $7.63 =$  .....

n  $42.27 =$  .....

o  $230.81 =$  .....

## 7 Choose the correct answer:

a  $\frac{8}{10} = \dots$

(10.8 or 0.08 or 8.0 or 0.8)

b  $\frac{4}{100} = \dots$

(40.0 or 0.04 or 4.0 or 0.4)

c  $5\frac{2}{10} = \dots$

(5.2 or 52.10 or 2.5 or 10.52)

d  $50\frac{3}{100} = \dots$

(50.03 or 5.3 or 5.03 or 50.3)

e  $0.2 = \dots$

 $(\frac{2}{5} \text{ or } \frac{2}{100} \text{ or } \frac{2}{10} \text{ or } \frac{8}{10})$ 

f  $0.09 = \dots$

 $(\frac{0}{9} \text{ or } \frac{9}{100} \text{ or } \frac{90}{10} \text{ or } \frac{9}{10})$ 

g  $4.7 = \dots$

 $(\frac{4}{7} \text{ or } \frac{47}{100} \text{ or } 7\frac{4}{10} \text{ or } 4\frac{7}{10})$ 

h  $60.02 = \dots$

 $(2\frac{60}{100} \text{ or } 60\frac{2}{100} \text{ or } 6\frac{2}{10} \text{ or } 60\frac{2}{10})$ 

i The decimal representing the shaded part in the corresponding model is .....

(4.1 or 0.4 or 1.4 or 4.0)

j The decimal representing the shaded part in the corresponding model is .....

(0.62 or 62 or 2.6 or 6.2)

k The decimal represented on the following number line is .....

(6.1 or 1.6 or 16.0 or 0.16)

## 8 Answer the following:

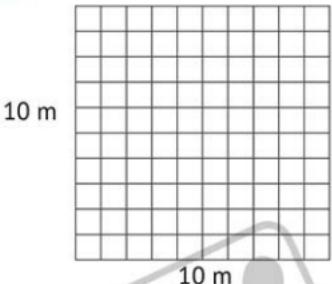
a) Walaa prepared a cake for her birthday. She divided that cake into **ten equal** parts; she decorated **0.3** of the cake in blue, **0.5** of the cake in red and the **remaining part** in green.



1 Color the shape to show the colors of the cake.

2 The **decimal** that represents the **green** part is .....

b) Hatem has a square garden with a side length of **10** meters and he divided it into **100** squares, each of them has a side length of **1** meter. He planted **52** squares of them with red flowers and **29** squares with vegetables.



Color the model to show this, then write the **decimal** that represents:

1 Red flowers: .....

2 Vegetables: .....

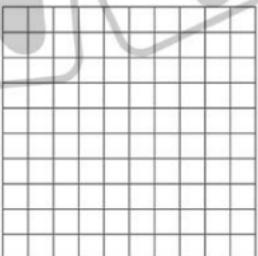
3 Unplanted part: .....

c) Color the opposite model according to the numbers shown:

1 0.15 Red

2 0.40 Blue

3 0.25 Green



4 What is the **decimal** representing the uncolored part? .....

# Assessment

# on Lessons 1&2

Unit 10

## 1 Choose the correct answer:

a  $\frac{17}{100} =$  ..... (1.07 or 0.17 or 17.0 or 1.7)

b  $\frac{3}{5} =$  ..... (0.3 or  $\frac{6}{10}$  or  $\frac{3}{10}$  or  $\frac{6}{5}$ )

c  $\frac{8}{10} =$  ..... (10.3 or 8.1 or 8.0 or 0.8)

d  $\frac{3}{8} < \frac{5}{8}$  ..... ( $<$  or  $>$  or  $=$  or  $\geq$ )

e  $\frac{25}{5}$  is a/an ..... (proper fraction or improper fraction or mixed number or decimal)

## 2 Complete the following:

a If the numerator is less than the denominator, the fraction is called a/an ..... .

b  $1\frac{3}{4} + 1\frac{1}{4} =$  ..... (As a fraction)

c  $\frac{2}{5} = \frac{.....}{10} = \frac{.....}{100}$  ..... (As a decimal)

d  $0.7 =$  ..... (As a fraction)

e  $\frac{4}{10} =$  ..... (As a decimal)

## 3 Answer the following:

a Ahmed had 10 pounds. He bought a pen for  $3\frac{1}{4}$  pounds and a notebook for  $2\frac{3}{4}$  pounds. Find the remaining money with Ahmed.

b Arrange the following fractions in an ascending order:

$$\frac{2}{2}, \frac{3}{7}, \frac{3}{2}, \frac{3}{8}$$

Ascending order: ..... < ..... < ..... < .....

## Lessons 3&amp;4

1 Write the **value** and the **place value** of the encircled digit:

Decimal	Value	Place Value
a 3.5		
b 25.7		
c 3.75		
d 14.6		
e 0.36		
f 7.28		
g 19.56		
h 2.08		
i 17.47		

2 Circle the digit in the **Tenths** place:

3.15 – 2.45 – 26.8 – 13.9 – 17.85 – 15.05 – 18.90 – 0.15

3 Circle the digit in the **Hundredths** place:

15.89 – 7.35 – 215.67 – 0.50 – 13.85 – 3.83 – 500.15 – 3.81

4 Write the **place value** of the digit 4 in each of the following:

a 34.56 → .....

b 25.43 → .....

c 20.04 → .....

d 41.36 → .....

e 2.4 → .....

f 4.2 → .....

## Fractions, Decimals, and Proportional Relationships

## 5 Write the number:

a Seven-tenths: .....

b Sixty-seven hundredths: .....

c 9 Ones and 3 Tenths: .....

d 7 Ones, 8 Tenths, and 3 Hundredths: .....

e 5 Tens, 3 Ones, 7 Tenths, and 6 Hundredths: .....

f 3 Ones, 28 Hundredths: .....

6 Write the following decimals in the **word form**:

a 0.5 : .....

b 0.7 : .....

c 0.92 : .....

d 0.15 : .....

e 0.07 : .....

f 8.8 : .....

g 53.7 : .....

h 2.56 : .....

i 17.08 : .....

j 25.73 : .....

7 Write the following numbers in the **standard form**:

a Five-hundredths: .....

b Twenty-three hundredths: .....

c Two-tenths: .....

d Five and three-tenths: .....

e Thirty and five hundredths: .....

f  $3 + 0.2 =$  .....

g  $50 + 7 + 0.3 =$  .....

h  $2 + 0.2 + 0.09 =$  .....

i  $40 + 8 + 0.5 + 0.02 =$  .....

j 3 Ones, 5 Tenths: .....

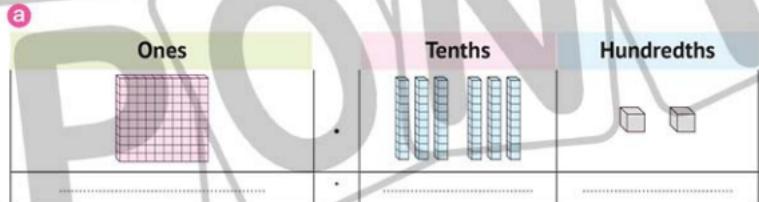
k 9 Tens, 3 Ones, 4 Tenths, 7 Hundredths: .....

i 6 Tens and 8 Hundredths: .....  
 m 9 Tens, 3 Ones, 6 Hundredths: .....  
 n 2 Tens, 2 Tents: .....

8 Complete the following table:

	Standard Form	Unit Form	Expanded Form
a	4.25	.....	.....
b	25.8	.....	.....
c	23.57	.....	.....
d	.....	5 Ones, 3 Tents, 7 Hundredths	.....
e	.....	9 Tens, 8 Ones, 4 Tents, 2 Hundredths	.....
f	.....	.....	$40 + 3 + 0.9 + 0.02$

9 Write the decimals represented on the model in different forms:



1 Standard Form: .....  
 2 Word Form: .....  
 3 Expanded Form: .....  
 4 Unit Form: .....

Fractions, Decimals, and Proportional Relationships

Theme ③

b

Ones	Tenths	Hundredths

1 Standard Form: .....

2 Word Form: .....

3 Expanded Form: .....

4 Unit Form: .....

c

Ones	Tenths	Hundredths

1 Standard Form: .....

2 Word Form: .....

3 Expanded Form: .....

4 Unit Form: .....

d

Ones	Tenths	Hundredths

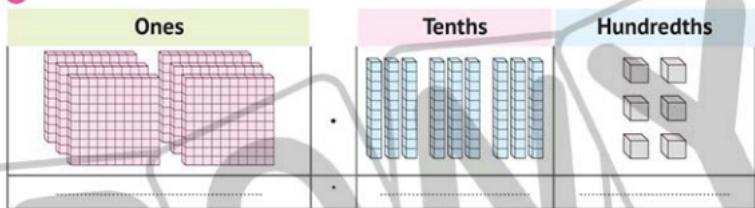
1 Standard Form: .....

2 Word Form: .....

3 Expanded Form: .....

4 Unit Form: .....

e



- 1 Standard Form: .....
- 2 Word Form: .....
- 3 Expanded Form: .....
- 4 Unit Form: .....

### 10 Choose the correct answer:

a The place value of the digit 4 in 24.85 is .....  
(Hundreds or Tenths or Ones or Tens)

b The place value of the digit 6 in 2.65 is .....  
(Hundreds or Tenths or Ones or Tens)

c The value of the digit 3 in 3.25 is .....  
(30 or 3 or 0.3 or 0.03)

d The value of the digit 2 in 18.12 is .....  
(20 or 2 or 0.2 or 0.02)

e  $30 + 0.5 + 4 =$  .....  
(3.54 or 34.5 or 35.4 or 30.54)

f  $2 + 0.09 + 3 =$  .....  
(5.09 or 2.39 or 2.93 or 3.29)

g 7 Ones, 9 Hundredths = .....  
(7.9 or 7.09 or 70.9 or 70.09)

h 3 Tens, 2 Ones, 5 Tenths .....  
(52.3 or 23.5 or 32.5 or 32.05)

i Twenty-five and three-hundredths = .....  
(25.03 or 25.3 or 3.25 or 300.25)

j Thirty and three-tenths = .....  
(30.03 or 3.03 or 10.3 or 3.3)

# Assessment

# on Lessons 3&4

Unit 10

## 1 Choose the correct answer:

a Three and three-hundredths = ..... (3.3 or 30.3 or 30.03 or 3.03)

b The value of the digit 7 in 27.15 is ..... (70 or 7 or 0.7 or 0.07)

c  $2 \frac{15}{100} =$  ..... (2.15 or 21.5 or 20.15 or 215)

d  $\frac{5}{9} >$  ..... ( $\frac{4}{9}$  or  $\frac{5}{9}$  or  $\frac{6}{9}$  or  $\frac{5}{7}$ )

e  $\frac{15}{25} =$  ..... ( $\frac{5}{5}$  or  $\frac{6}{7}$  or  $\frac{3}{5}$  or  $\frac{1}{2}$ )

## 2 Complete the following:

a The place value of the digit 7 in 3.07 is .....

b 31.84 in the expanded form is .....

c The word form of 20.02 is .....

d  $\frac{2}{5} \times 5 =$  ..... e  $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} =$  ..... = .....

## 3 Match:

a  $3 + 0.3$  ..... 1

b Three and three hundredths ..... 2

c 3 Tens, 3 Hundredths ..... 3

d  $30 + 0.3$  ..... 4

# Assessment on Concept

# 1



First: Choose the correct answer:

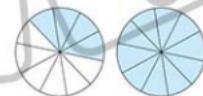
1  $0.6 =$  .....

$\frac{6}{100}$  or  $\frac{0}{6}$  or  $\frac{4}{6}$  or  $\frac{6}{10}$

2 5 Hundredths = .....

(500 or 0.5 or 0.05 or 5.0)

3 The decimal that represents the shaded parts in the opposite model is .....



(1.4 or 0.4 or 4.1 or 0.14)

4 The decimal that is represented on the following number line is .....



(2.4 or 4.2 or 6.3 or 3.6)

5 The value of the digit 7 in 27.63 is .....

(0.07 or 7 or 0.7 or 70)

6  $30 + 5 + 0.05 =$  .....

(40 or 3.55 or 35.5 or 35.05)

7 6 Tens, 3 Tenths, 4 Hundredths = .....

(60.34 or 60.34 or 43.6 or 60.34)

8 Seventy-five and fifteen-hundredths = .....

(7.515 or 75.5 or 75.15 or 15.75)

9  $50 + 0.5 =$  .....

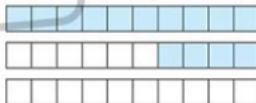
(55 or 50.5 or 5.05 or 50.05)

10  $8 \frac{3}{100} =$  .....

(8.03 or 80.3 or 8.3 or 80.03)

Second: Complete the following:

1 The decimal that represents the shaded parts in the opposite model is .....



2 The decimal that is represented on the following number line is .....



### Assessment on Unit 10

3  $\frac{25}{100} =$  ..... (As a decimal)

4  $4 \frac{2}{10} =$  ..... (As a decimal)

5  $0.09 =$  ..... (As a fraction)

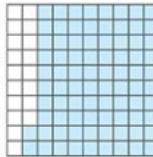
6  $12.21 =$  ..... (As a fraction)

7 The **place value** of the digit 6 in 24.65 is ..... (As a fraction)

8 The **value** of the digit 9 in 40.29 is ..... (As a fraction)

9 25.25 (**In word form**): ..... (As a fraction)

10 The decimal that represents the shaded part of the opposite model is ..... (As a fraction)



### Third: Answer the following

1 Ahmed bought a pizza. He divided it into 10 equal parts. He gave 3 parts to his brother Sameh and 4 parts to his brother Fouad and he ate the rest. Write the decimal that represents the share of each of them.

Sameh: ..... (As a fraction)

Fouad: ..... (As a fraction)

Ahmed: ..... (As a fraction)

2 Match:

a

Fifty and five hundredths

b

Fifty-five and five-tenths

c

$50 + 5 + 0.5$

55.5

50.05

5 Tens, 5 Ones, 5 Tenths

5 Tens, 5 Hundredths

$50 + 0.05$

d

e

f

# Concept 10.2 Decimals and Fractions

## Lessons 5-7

1 Complete the following table:

Fraction/Mixed Number	Decimal	Expanded Form	Word Form
a $\frac{17}{100}$			
b $\dots \dots$	2.5		
c $\dots \dots$		$20 + 3 + 0.5$	
d $\dots \dots$			Three and fifty-seven hundredths
e $2 \frac{5}{100}$			
f $\dots \dots$	13.12		
g $\dots \dots$		$60 + 2 + 0.3 + 0.04$	
h $\dots \dots$			Forty and four hundredths

## Fractions, Decimals, and Proportional Relationships

2 Write the following decimals in the **fraction form**:

a 10.05 = .....

b 3.4 = .....

c 16.5 = .....

d 2.65 = .....

e 0.25 = .....

f 0.3 = .....

g 0.08 = .....

h 12.4 = .....

3 Write the following fractions and mixed numbers as **decimals**:

a  $\frac{7}{100}$  = .....

b  $\frac{5}{10}$  = .....

c  $\frac{25}{100}$  = .....

d  $\frac{15}{100}$  = .....

e  $12 \frac{4}{100}$  = .....

f  $3 \frac{4}{10}$  = .....

g  $25 \frac{15}{100}$  = .....

h  $7 \frac{12}{100}$  = .....

## 4 Complete as in the example:

Ex.  $1.5 = \frac{15}{10} = 1 \frac{5}{10}$

a  $14.3 = \dots = \dots$

b  $3.4 = \dots = \dots$

c  $2.05 = \dots = \dots$

d  $15.15 = \dots = \dots$

## 5 Complete as in the example:

Ex.  $2 \frac{4}{10} = \frac{24}{10} = 2.4$

a  $3 \frac{6}{10} = \dots = \dots$

b  $6 \frac{5}{100} = \dots = \dots$

c  $15 \frac{2}{10} = \dots = \dots$

d  $12 \frac{14}{100} = \dots = \dots$

6 Decompose the units to represent each number:

Number	Fraction Form	Decimal Form Tenths
a 2	.....	.....
b 5	.....	.....
c 14	.....	.....
d 0.8	.....	.....
e 0.3	.....	.....
f 2.5	.....	.....
g 4.9	.....	.....
h 21.7	.....	.....

7 Decompose the units to represent each number:

Number	Fraction Form	Decimal Form Hundredths
a 6	.....	.....
b 18	.....	.....
c 0.05	.....	.....
d 0.14	.....	.....
e 2.09	.....	.....
f 12.06	.....	.....
g 5.18	.....	.....
h 25.35	.....	.....

## 8 Complete:

a  $\frac{1}{2} = \frac{5}{\dots\dots\dots} = \frac{\dots\dots\dots}{100}$

c  $1.5 = \frac{15}{\dots\dots\dots} = \frac{\dots\dots\dots}{100}$

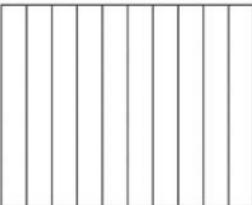
e  $12.2 = \frac{122}{\dots\dots\dots} = \frac{1220}{\dots\dots\dots}$

b  $\frac{4}{5} = \frac{\dots\dots\dots}{10} = \frac{\dots\dots\dots}{100}$

d  $0.3 = \frac{3}{\dots\dots\dots} = \frac{30}{\dots\dots\dots}$

f  $2.8 = \frac{\dots\dots\dots}{10} = \frac{280}{\dots\dots\dots}$

9 Zeina is making a blanket for her brother Ziad. She has 100 small squares of fabrics in red, blue and green. She wants to make a blanket with 10 strips as the opposite model, and she decides that for every 10 small squares, she will make one strip.



Answer the following questions:

a If Zeina wants 3 red strips, how many small squares will she need?  
 .....  
 .....  
 .....

b Zeina made 3 red strips and sewed them together. What is the fraction and the decimal representing the ending part of the blanket?  
 .....  
 .....  
 .....

c If Zeina wants to add 5 blue strips, how many small squares does she need?  
 .....  
 .....

d After adding the new blue strips to the previous red strips, what is the fraction representing the finished part of the blanket?  
 .....  
 .....

e Write the fraction and decimal representing the green part of the blanket.  
 .....

# Assessment

# on Lessons 5-7

## Unit 10

### 1 Choose the correct answer:

a  $\frac{15}{10} =$  ..... (1.5 or 0.15 or 10.5 or 1.05)

b  $2.5 =$  ..... ( $\frac{25}{100}$  or  $\frac{25}{10}$  or 2 or  $\frac{5}{100}$  or 20 or  $\frac{5}{10}$ )

c  $4 + 0.04 =$  ..... (4.4 or 0.44 or 4.04 or 40.04)

d 25 Tenths = ..... (5.2 or 52.0 or 50.2 or 5.02)

e 100 Tenths = ..... (0.01 or 0.1 or 1 or 10)

### 2 Complete:

a  $\frac{35}{100} =$  ..... (As a decimal)

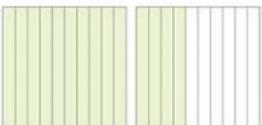
b  $8 =$  ..... Tenths

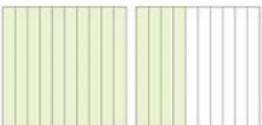
c  $7.3 =$  ..... (As a fraction)

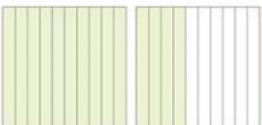
d  $2.50 =$  ..... Hundredths

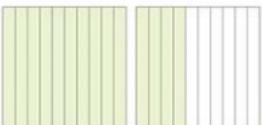
e  $\frac{3}{5} = \frac{60}{\text{_____}} = \frac{60}{10}$

### 3 Express the following models in different forms:

a Fraction: ..... 

b Decimal: ..... 

c Word Form: ..... 

d Unit Form: ..... 

# Assessment on Concept 2



First: Choose the correct answer:

1  $\frac{15}{10} =$  ..... (1.5 or 0.15 or 10.5 or 1.05)

2  $2.5 =$  ..... ( $\frac{25}{100}$  or  $\frac{25}{10}$  or  $2 \frac{5}{100}$  or  $20 \frac{5}{10}$ )

3  $50 + 2 + 0.03 =$  ..... (5.23 or 52.3 or 52.03 or 50.23)

4 Thirty and nineteen-hundredths = ..... (30.19 or 301.9 or 3.19 or 30.09)

5 25 Tents = ..... (20.5 or 2.05 or 0.25 or 2.5)

6 100 Tents = ..... (10 or 1 or 0.1 or 0.01)

7  $\frac{4}{5} =$  ..... (0.08 or 0.8 or 0.45 or 0.4)

8  $0.4 =$  ..... ( $\frac{4}{5}$  or  $\frac{2}{5}$  or  $\frac{8}{5}$  or  $\frac{80}{10}$ )

9  $2 \frac{5}{100} =$  ..... (2.05 or 2.5 or 20.5 or 20.05)

10 5 Tens, 3 Ones, 8 Hundredths = ..... (8.35 or 53.8 or 53.08 or 53.18)

Second: Complete the following:

1  $\frac{35}{100} =$  ..... (As a decimal)

2  $7.3 =$  ..... (As a fraction)

3  $20 + 9 + 0.2 + 0.05 =$  ..... (As a decimal)

4 36 Tents = ..... (As a decimal)

5 200 Hundredths = ..... (As a decimal)

6  $\frac{3}{5} = \frac{...}{10} = \frac{60}{...}$  (As a decimal)

7 Ninety-six and sixty-nine hundredths = ..... (As a decimal)

8 9 Tens, 5 Ones, 3 Hundredths = ..... (As a decimal)

9  $8 =$  ..... Tents

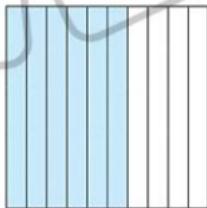
10  $2.50 =$  ..... Hundredths

## Third: Answer the following:

1 Yassin has  $20\frac{4}{10}$  pounds. Express this amount of money in decimals,

then in **Tenths** form?

2 In the opposite model, express the shaded part as a fraction, then express it as Tenths, then as Hundredths.



# Concept 10.3 Operations on Decimals

## Lessons 8&9

1 Shade each model according to the decimal, then compare using ( $<$ ,  $=$  or  $>$ ):

a



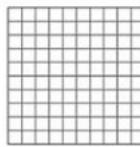
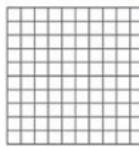
$$0.3 \quad \square \quad 0.5$$

b



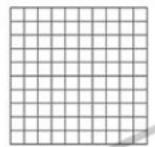
$$0.8 \quad \square \quad 0.6$$

c



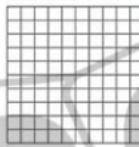
$$0.27 \quad \square \quad 0.32$$

d



$$0.30 \quad \square \quad 0.52$$

e



$$0.09 \quad \square \quad 0.9$$

f



$$0.6 \quad \square \quad 0.58$$

2 Rewrite the decimals in the place value table, then compare using ( $<$ ,  $=$  or  $>$ ):

a

$$0.35 \quad \square \quad 0.5$$

Ones

Tenths

Hundredths

.

.

b

$$0.95 \quad \square \quad 0.8$$

Ones

Tenths

Hundredths

.

.

c.  $0.06$    $0.6$

Ones  Tenths  Hundredths

d.  $0.30$    $0.3$

Ones  Tenths  Hundredths

e.  $0.25$    $2.50$

Ones  Tenths  Hundredths

f.  $1.63$    $16.3$

Ones  Tenths  Hundredths

g.  $42.88$    $12.7$

Ones  Tenths  Hundredths

h.  $6.89$    $53.2$

Ones  Tenths  Hundredths

Unit

3. Compare using ( $<$ ,  $=$  or  $>$ ):

1.  $0.7$    $0.3$       2.  $0.38$    $0.25$       3.  $0.6$    $0.9$

4.  $0.65$    $0.85$       5.  $0.2$    $0.12$       6.  $0.6$    $0.88$

7.  $0.05$    $0.5$       8.  $0.50$    $0.5$       9.  $5.2$    $2.5$

10.  $3.4$    $3.6$       11.  $4.65$    $6.45$       12.  $4.18$    $4.08$

13.  $2.18$    $2.2$       14.  $3.7$    $3.07$       15.  $4.05$    $40.5$

16.  $3.80$    $3.8$       17.  $3.68$    $3.8$       18.  $2.59$    $3.2$

19.  $15.20$    $15.2$       20.  $12.5$    $1.25$       21.  $9.2$    $12.3$

22.  $0.8$    $\frac{4}{5}$       23.  $0.03$    $\frac{3}{10}$       24.  $0.58$    $\frac{5}{10}$

25.  $3.25$    $3\frac{2}{5}$       26.  $2.4$    $4\frac{1}{2}$       27.  $12.75$    $12\frac{3}{4}$

4 Write the decimals representing each of the following forms. Then compare using ( $<$ ,  $=$  or  $>$ ):

a

Thirty-five hundredths



b

3 Ones, 4 Hundredths



c

 $50 + 3 + 0.4 + 0.02$ 

d

Eight and five-tenths



e

200 Tenths



f

105 Hundredths



3 Tenth, 5 Hundredths

 $30 + 0.04$ 

Forty-two and fifty-hundredths

85 Tenths

200 Hundredths

 $10 + 0.05$ 

5 Arrange the following in an **ascending** order:

a  $0.8, 0.01, 0.1, 0.18$  $\rightarrow \dots, \dots, \dots, \dots$ b  $2.5, 5.2, 0.25, 0.52$  $\rightarrow \dots, \dots, \dots, \dots$ c  $3\frac{5}{100}, 30\frac{5}{10}, 30.05, 3.5$  $\rightarrow \dots, \dots, \dots, \dots$ 

6 Arrange the following in a **descending** order:

a  $0.02, 0.29, 0.92, 0.2$  $\rightarrow \dots, \dots, \dots, \dots$ b  $15.3, 1.53, 13.5, 1.35$  $\rightarrow \dots, \dots, \dots, \dots$ c  $9\frac{3}{100}, 3\frac{9}{10}, 9.3, 3.09$  $\rightarrow \dots, \dots, \dots, \dots$

## 7 Which is greater:

a 4.25 pounds

or  $4\frac{1}{2}$  pounds?

b 0.8 of a bar of chocolate

or  $\frac{5}{10}$  of the same bar?

c  $\frac{3}{4}$  liter of juice

or 0.85 liter of juice?

d 0.28 kilometer

or  $\frac{3}{5}$  kilometer?

e  $2\frac{1}{2}$  hours

or 2.05 hours?

f 0.4 of a bottle of oil

or 0.04 of the same bottle?

g Half a day

or 0.09 of a day?

## 8 Choose the correct answer:

a  $0.3 > \dots$

(30.3 or 3.03 or 0.03 or 0.30)

b  $\frac{1}{5} = \dots$

(0.2 or 1.5 or 5.1 or 0.1)

c  $8.02 < \dots$

(0.28 or 8.82 or 2.08 or 2.8)

d  $\frac{3}{4} \square 0.57$

(> or = or < or  $\leq$ )

e  $0.08 \square 0.8$

(> or = or < or  $\leq$ )

f  $3\frac{4}{5} = \dots$

(3.8 or 3.08 or 34.5 or 1.9)

g  $12\frac{5}{10} = \dots$

(12.05 or 12.50 or 1.25 or 1.250)

h Seventy-three and six-hundredths =

(73.6 or 73.06 or 7.36 or 70.06)

i 205 Tenths =

(2.5 or 20.05 or 20.5 or 2.05)

j  $0.08 + 5 + 30 = \dots$

(35.08 or 35.8 or 3.58 or 30.58)

k  $20 + 0.06 = \dots$

(20.6 or 2.6 or 2.06 or 20.06)

# Assessment

# on Lessons 8&9

Unit 10

## 1 Choose the correct answer:

a  $3 \frac{5}{10}$   3.05

( $\geq$  or  $>$  or  $=$  or  $<$ )

b  $\frac{5}{8}$    $\frac{3}{4}$

( $\geq$  or  $>$  or  $=$  or  $<$ )

c  $2.5 > \dots$

(54.2 or 2.5 or 16.2 or 5.52)

d  $\frac{3}{5} + \frac{3}{5} + \frac{3}{5} = \dots$

( $2 \frac{3}{5}$  or  $1 \frac{4}{5}$  or  $\frac{3}{5}$  or  $\frac{9}{15}$ )

e The Multiplicative Identity Property is ..... ( $\frac{3}{4}$  or  $\frac{1}{2}$  or 1 or 0)

## 2 Complete the following:

a  $2.15 = \dots$

b  $12 \frac{1}{2} = \dots$

(As a decimal)

c  $\frac{3}{5} = \frac{\dots}{10} = \frac{\dots}{100}$

d 1,015 Hundredths = .....

(As a decimal)

e Seventy and seven-hundredths = .....

(As a decimal)

## 3 Answer the following:

a Hossam bought 5 pens of the same type; the price of one pen is  $\frac{3}{4}$  pound. How much money did Hossam pay for the pens?

.....

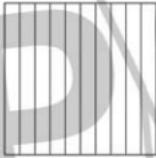
b Which is greater, 0.3 of a pizza or  $\frac{43}{100}$  of the same pizza?

.....

## Lessons 10&amp;11

1 Shade the following models according to the shown fractions and mixed numbers, then find the result:

a



+

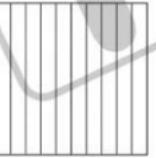


$$\frac{7}{10} + \frac{3}{10} =$$

b

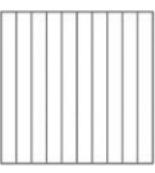
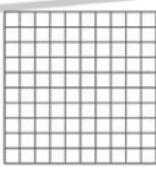


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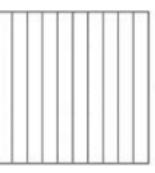
$$\frac{8}{10} + \frac{1}{10} =$$

c

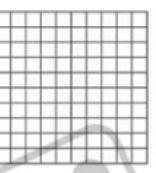


$$\frac{3}{10} + \frac{27}{100} =$$

d

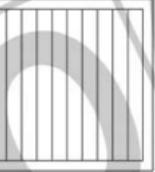


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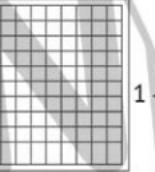


$$\frac{18}{100} + \frac{8}{10} =$$

e

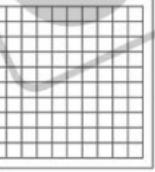
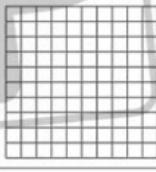


+

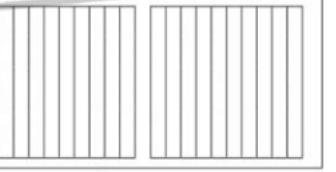


$$1\frac{3}{10} + \frac{45}{100} =$$

f



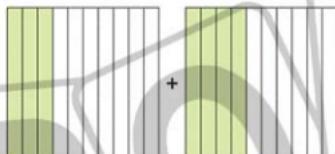
+



$$1\frac{42}{100} + 1\frac{3}{10} =$$

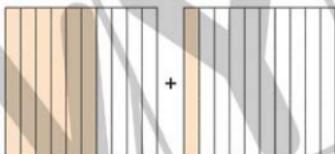
2 Write the **addition equation** represented on the following models, then solve it:

a



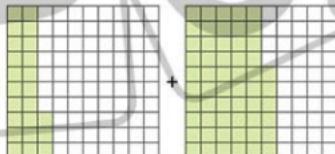
$$\dots + \dots = \dots$$

b



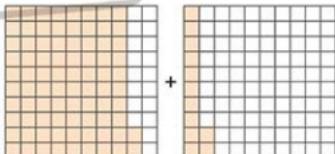
$$\dots + \dots = \dots$$

c



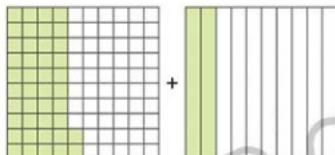
$$\dots + \dots = \dots$$

d



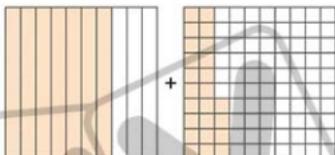
$$\dots + \dots = \dots$$

e



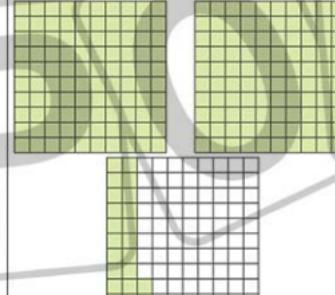
$$\dots + \dots = \dots$$

f

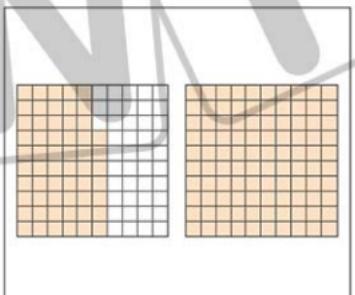


$$\dots + \dots = \dots$$

g



$$\dots + \dots = \dots$$



$$\dots + \dots = \dots$$

## 3 Find the result:

a  $\frac{3}{10} + \frac{5}{10} =$

c  $3 \frac{4}{10} + 2 \frac{5}{10} =$

e  $\frac{18}{100} + \frac{25}{100} =$

g  $\frac{45}{100} + \frac{75}{100} =$

i  $2 \frac{25}{100} + \frac{95}{100} =$

k  $\frac{3}{10} + \frac{49}{100} =$  + =

l  $\frac{43}{100} + \frac{8}{10} =$  + =

m  $\frac{7}{10} + \frac{85}{100} =$  + =

n  $\frac{51}{100} + \frac{5}{10} =$  + =

o  $1 \frac{4}{10} + 2 \frac{23}{100} =$  + =

p  $4 \frac{73}{100} + 1 \frac{1}{10} =$  + =

q  $5 \frac{7}{10} + 3 =$

b  $\frac{7}{10} + \frac{3}{10} =$

d  $7 \frac{2}{10} + 1 \frac{8}{10} =$  =

f  $\frac{19}{100} + \frac{81}{100} =$  =

h  $4 \frac{35}{100} + 7 \frac{14}{100} =$

j  $3 \frac{45}{100} + 4 \frac{75}{100} =$  =

r  $6 \frac{19}{100} + 5 =$

s  $6 + 3 \frac{19}{100} =$

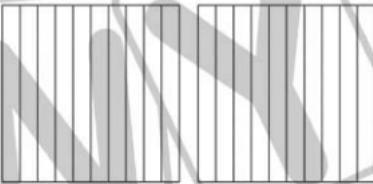
t  $5 + 6 \frac{2}{10} =$

## Fractions, Decimals, and Proportional Relationships

## 4 Use the models to represent the fractions, then solve the problem:

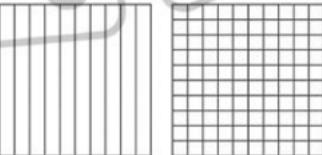
a Fatima poured  $\frac{3}{10}$  liter of water

into a bowl that already had a liter of water. How many liters of water are in the bowl now?



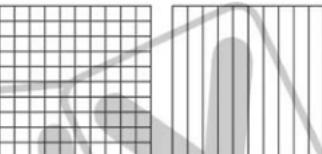
b Laila was reading a book on the weekend; she read  $\frac{3}{10}$  of the book on Friday, and  $\frac{65}{100}$  of the book on

Saturday. What fraction represents all that Laila read?



c Ziad has a one-liter jug.  $\frac{2}{10}$  liter of

the jug is full. He added  $\frac{60}{100}$  liter to



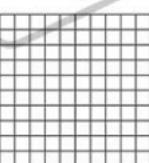
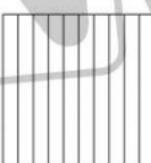
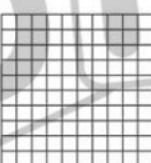
the jug. What fraction represents the empty part of the jug?

d Hazem bought a pencil

for  $\frac{25}{100}$  pound,

a notebook for  $\frac{6}{10}$

pound, and a ruler for  $\frac{45}{100}$  pound. How much money did Hazem pay?



## 5 Complete the following:

a.  $\frac{3}{10} + \dots = \frac{9}{10}$

b.  $\frac{15}{100} + \dots = \frac{60}{100}$

c.  $\dots + 1\frac{8}{10} = 3$

d.  $\dots + 2\frac{15}{100} = 2\frac{85}{100}$

e.  $\frac{55}{100} + \frac{30}{100} = \dots + \dots$

f.  $2\frac{7}{10} + \dots = \dots + \frac{15}{100} =$

## 6 Choose the correct answer:

a.  $\frac{3}{10} + \dots = \frac{50}{100}$

 $(\frac{20}{100} \text{ or } \frac{47}{100} \text{ or } \frac{20}{10} \text{ or } \frac{2}{100})$ 

b.  $\frac{45}{100} + \dots = 1$

 $(\frac{5}{10} \text{ or } \frac{15}{100} \text{ or } \frac{55}{100} \text{ or } \frac{65}{100})$ 

c.  $1\frac{2}{10} + \dots = 2$

 $(\frac{98}{100} \text{ or } \frac{18}{100} \text{ or } \frac{80}{100} \text{ or } 1\frac{8}{10})$ 

d.  $2\frac{25}{100} + 2\frac{75}{100} = \dots$

 $(5\frac{100}{100} \text{ or } 5 \text{ or } 4\frac{9}{10} \text{ or } 4)$ 

## 7 Compare using (&lt;, = or &gt;):

a.  $\frac{9}{10} + \frac{9}{10} \quad \square \quad \frac{18}{100}$

b.  $\frac{25}{100} + \frac{75}{100} \quad \square \quad \frac{5}{10} + \frac{5}{10}$

c.  $\frac{55}{100} + \frac{45}{100} \quad \square \quad \frac{9}{10}$

d.  $\frac{2}{10} + \frac{45}{100} \quad \square \quad \frac{2}{100} + \frac{45}{100}$

e.  $\frac{9}{100} + \frac{9}{100} \quad \square \quad \frac{99}{100}$

f.  $\frac{35}{100} + \frac{55}{100} \quad \square \quad \frac{3}{10} + \frac{5}{10}$

# Assessment

# on Lessons 10&11

## Unit 10

### 1 Choose the correct answer:

a  $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$  .....

$(\frac{5}{35} \text{ or } \frac{5}{7} \text{ or } \frac{1}{7} \text{ or } \frac{1}{35})$

b  $\frac{12}{24} = \frac{\square}{8}$

$(1 \text{ or } 3 \text{ or } 4 \text{ or } \frac{1}{2})$

c  $3 \frac{5}{8}$  is a/an .....

(proper fraction **or** improper fraction **or** mixed number **or** whole number)

d  $3.05 =$  .....

$(3 \frac{5}{100} \text{ or } 3 \frac{5}{10} \text{ or } 30 \frac{5}{10} \text{ or } 30 \frac{5}{100})$

e  $\frac{4}{10} + \frac{\square}{10} = \frac{64}{100}$

$(\frac{60}{10} \text{ or } \frac{60}{100} \text{ or } \frac{6}{10} \text{ or } \frac{24}{100})$

### 2 Find the result:

a  $2 \frac{3}{10} + 2 \frac{65}{100} =$  .....

b  $3 \frac{1}{5} - 1 \frac{4}{5} =$  .....

c  $4 \frac{3}{4} + 2 \frac{1}{4} =$  .....

d  $5 \times \frac{3}{4} =$  .....

### 3 Answer the following:

a Karim had 10 pounds. He bought a pen for  $3 \frac{6}{10}$  pounds, and an eraser for  $2 \frac{40}{100}$  pounds. Find the remaining money with him.

b Write the following fraction as a **decimal**, then write its different **forms**.

• Fraction:  $14 \frac{15}{100}$

1 Decimal: .....

2 Word Form: .....

3 Expanded Form: .....

4 Unit Form: .....

# Assessment on Concept 3



Unit 10

First: Choose the correct answer:

1 Seventy and seven-hundredths = ..... (70.70 or 70.07 or 7.07 or 70.7)

2  $3 \frac{12}{100} =$  ..... (3.12 or 30.12 or 31.2 or 31.02)

3  $50 + 2 + 0.8 + 0.09 =$  ..... (528.9 or 52.09 or 52.89 or 50.29)

4  $7.05 =$  ..... ( $7 \frac{5}{10}$  or 70  $\frac{5}{10}$  or  $70 \frac{5}{100}$  or  $7 \frac{5}{100}$ )

5  $0.08$    $0.8$  ( $\leq$  or  $<$  or  $=$  or  $>$ )

6  $0.10$    $\frac{5}{5}$  ( $\leq$  or  $<$  or  $=$  or  $>$ )

7  $0.50$    $\frac{1}{2}$  ( $\leq$  or  $<$  or  $=$  or  $>$ )

8  $\frac{4}{10} +$  .....  $= \frac{44}{100}$  ( $\frac{40}{100}$  or  $\frac{4}{100}$  or  $\frac{4}{10}$  or  $\frac{40}{10}$ )

9  $5 = 2 \frac{5}{10} +$  ..... ( $2 \frac{5}{100}$  or  $2 \frac{50}{10}$  or  $2 \frac{50}{100}$  or  $3 \frac{5}{10}$ )

10  $3 \frac{1}{10} + 3 \frac{11}{100} =$  ..... ( $6 \frac{12}{10}$  or  $7 \frac{21}{100}$  or  $6 \frac{21}{100}$  or  $3 \frac{21}{100}$ )

Second: Complete the following:

1 Thirty-three and three-tenths = ..... (As a decimal)

2  $15 \frac{3}{100} =$  ..... (As a decimal)

3  $2.08 =$  ..... (As a fraction)

Assessment on Unit 10

4  $\frac{5}{10} = \frac{\square}{100}$

5  $\frac{3}{10} = \frac{\square}{100}$

6  $50 + 0.7 + 0.04 = \underline{\hspace{2cm}}$

7 5 Ones, 3 Hundredths =  $\underline{\hspace{2cm}}$

8 2.15 (In expanded form) =  $\underline{\hspace{2cm}}$

9 57.40 (In word form) =  $\underline{\hspace{2cm}}$

10  $\frac{3}{10}$  pound and  $\frac{25}{100}$  pound, the greatest amount is  $\underline{\hspace{2cm}}$

Third: Answer the following:

1 Find the result:

a  $\frac{18}{100} + \frac{45}{100} = \underline{\hspace{2cm}}$

b  $\frac{4}{10} + \frac{9}{10} = \underline{\hspace{2cm}}$

c  $2 \frac{1}{10} + 3 \frac{68}{100} = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

d  $4 \frac{5}{100} + 2 \frac{5}{10} = \underline{\hspace{2cm}} + \underline{\hspace{2cm}} = \underline{\hspace{2cm}}$

2 Ahmed had  $3 \frac{25}{100}$  pounds and his mother gave him  $6 \frac{75}{100}$  pounds.

How much money does Ahmed have now?

# Assessment

# 1

on



First: Choose the correct answer:

1 The decimal that represents the shaded part of the opposite model is ..... (2.8 or 8.2 or 0.8 or 0.2)

2  $5 \frac{3}{10} =$  ..... (50.03 or 5.3 or 50.3 or 5.03)

3 Fifty-four and 3 hundredths = ..... (5.43 or 4.53 or 54.3 or 54.03)

4 The value of the digit 4 in 32.45 is ..... (0.04 or 0.4 or 4 or 0)

5  $\frac{45}{100}$   4  $\frac{5}{100}$  (≤ or < or = or >)



Second: Complete the following:

1 The digit that represents the **Tenths** in 25.39 is .....

2 3.24 (In word form): .....

3  $5.03 =$  ..... (As a mixed number)

4  $80 + \frac{5}{10} + \frac{3}{100} =$  ..... (As a decimal)

5  $(3 \times 10) + (2 \times 1) + (5 \times \frac{1}{10}) + (7 \times \frac{1}{100}) =$  ..... (As a decimal)

Third: Compare using (<, =, or >):

1  $20.3$    $2.3$

2  $7.09$    $70.9$

3  $0.88$    $\frac{8}{10} + \frac{8}{10}$

4  $0.50$    $\frac{5}{10}$

5  $5 \frac{7}{10} + 5 \frac{1}{100}$   Eight and seventy-one hundredths

Assessment on Unit 10

Fourth: Match:

1 5.7

2 50.7

3 5.07

4 50.07

a Five and seven hundredths

b  $5 + 0.7$

c  $(5 \times 10) + (7 \times \frac{1}{100})$

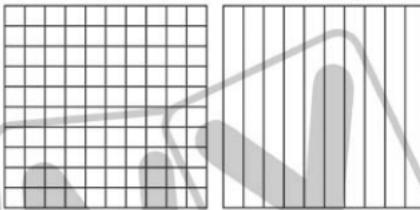
d 5 Tens, 7 Tenths

Fifth: Answer the following:

- Ziad has a 1 liter jug, he filled it with  $\frac{2}{10}$  liter and added  $\frac{60}{100}$  liter to the jug.

What is the fraction that represents the empty part of the jug?

(In Tenths and Hundredths)



# Assessment 2

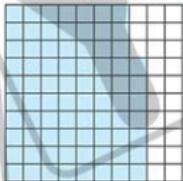
on



First: Choose the correct answer:

1 The decimal that represents the shaded part in the opposite model is ..... .

(7.7 or 0.23 or 0.77 or 7.07)



2  $81 \frac{5}{100} =$  .....

(8.15 or 81.5 or 81.05 or 81.15)

3 The place value of the digit 3 in 24.36 is .....

(Tens or Ones or Tenths or Hundredths)

4  $4 + 0.3 + 0.08 =$  .....

(40.38 or 43.08 or 4.38 or 43.80)

5  $0.50$    $0.05$

(< or = or > or ≥)

Second: Complete the following:

1 5 Tens , 3 Tenths , 7 Hundredths = .....

2  $12.08$  (In expanded form): .....

3  $\frac{46}{10} =$  .....

(As a decimal)

4  $2 \frac{4}{10} + 3 \frac{4}{100} =$  .....

5  $\frac{3}{10} +$  ..... = 0.33

Third: Arrange the following decimals:

0.25 , 5.2 , 2.5 , 20.2 , 50.2

1 In an ascending order: ....., ....., ....., ....., .....

2 In a descending order: ....., ....., ....., ....., .....

Assessment on Unit 10

Fourth: Match:

1  $3 \frac{1}{100}$

2  $3 \frac{1}{10}$

3  $1 \frac{3}{100}$

4  $\frac{13}{100}$

5  $\frac{13}{10}$

a  $3.1$

b  $3.01$

c  $0.13$

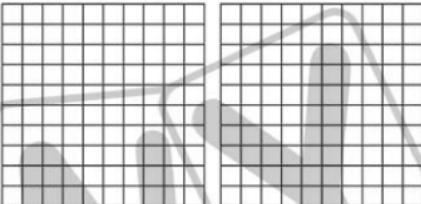
d  $1.3$

e  $1.03$

Fifth: Use the following models to represent the fractions, then solve the following problems:

- Fatima poured  $\frac{35}{100}$  liter of water into a pot that contained  $\frac{85}{100}$  liter of water.

How many liters of water in the pot now?

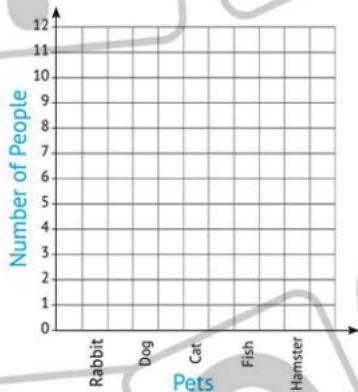


## Concept 11.1 Creating and Analyzing Graphs

## Lesson 1

1 The following bar graph represents the types of pets that a number of people have at home:

a Represent the following data using the bar graph:



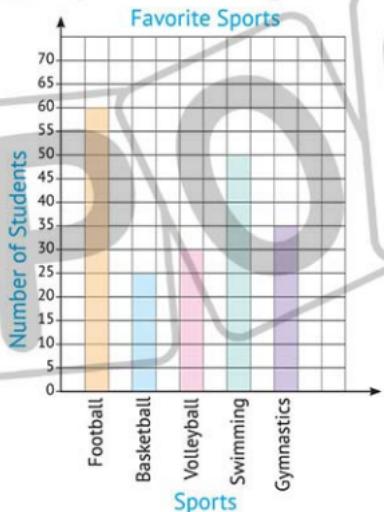
Pet	Number of People
Rabbit	4
Dog	8
Cat	11
Fish	6
Hamster	5

b Answer the following questions:

- 1 How many people have a dog?
- 2 How many people have fish?
- 3 How many more people have a cat than a hamster?
- 4 How many fewer people have a fish than a dog?
- 5 What kind of pets that the largest number of people have?
- 6 What kind of pets that the least number of people have?

2 The following bar graph shows the favorite sports of some students:

a Complete the following table:

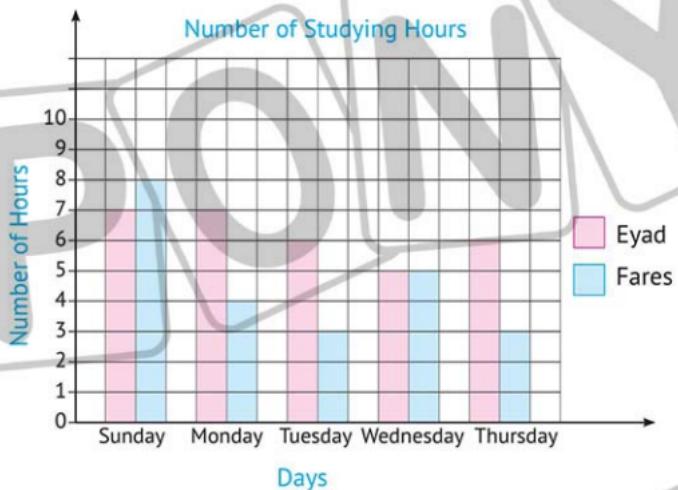


Sport	Number of Students
Football	
Basketball	
Volleyball	
Swimming	
Gymnastics	

b Answer the following questions:

- 1 How many students prefer football? .....
- 2 How many students prefer volleyball? .....
- 3 What is the total number of students who prefer basketball and swimming together? .....
- 4 What is the total number of students who prefer volleyball and gymnastics together? .....
- 5 How many more students like football than swimming? .....
- 6 How many fewer students like basketball than gymnastics? .....
- 7 What sport is preferred by the largest number of students? .....
- 8 What sport is preferred by the least number of students? .....

3 The following double bar graph shows the **number of hours** that **Eyad** and **Fares** studied:



a Complete the following table:

Day	Sunday	Monday	Tuesday	Wednesday	Thursday
Eyad	.....	.....	.....	.....	.....
Fares	.....	.....	.....	.....	.....

b Answer the following questions:

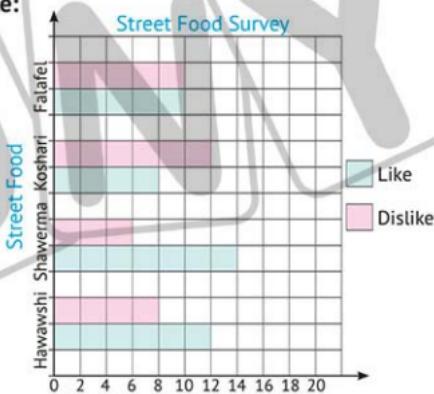
- 1 How many hours did **Eyad** study on **Tuesday**? .....
- 2 What is the **total** number of hours that **Fares** and **Eyad** studied on **Monday**? .....
- 3 On which day did they both study the **same** number of hours? .....
- 4 On which day did **Fares** study more hours than **Eyad**? .....
- 5 What is the **difference** between the number of hours that each of them studied on **Thursday**? .....

## Fractions, Decimals, and Proportional Relationships

4 The following double bar graph represents the result of a **survey** about some **street food**, where **20** people were asked:

a Complete the following table:

Street Food	Like	Dislike
Hawawshi	.....	.....
Shawerma	.....	.....
Koshari	.....	.....
Falafel	.....	.....



b Answer the following questions:

Number of People

- 1 What food do most people **prefer**? .....
- 2 What food do most people **dislike**? .....
- 3 How many more people do not like **Koshari** than those who do? .....
- 4 What food is liked and disliked by the **same** number of people? .....

5 Write the **type of graph** for each of the following:

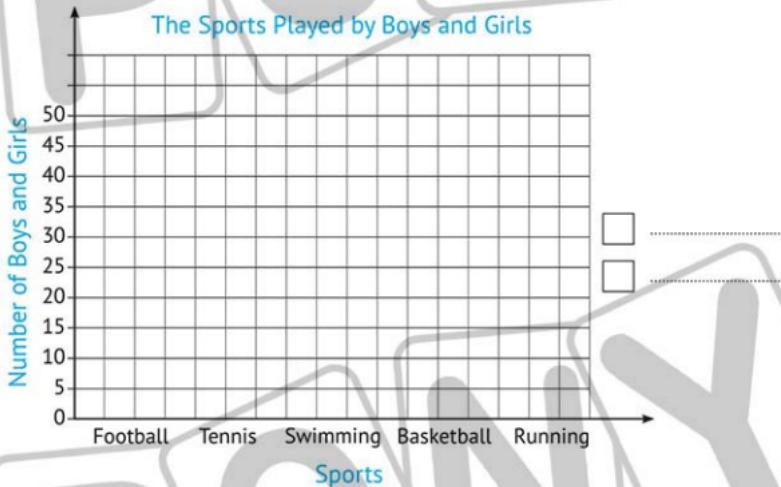
(Bar Graph - Double Bar Graph)

- The favorite animals of a number of people. (.....)
- Maximum and minimum temperatures in 5 days in Cairo. (.....)
- Number of boys and girls in the fourth grade classes. (.....)
- Favorite sports of a number of students. (.....)
- The studying hours spent by Salma and Yassin. (.....)

6 The following table represents the sports played by a number of boys and girls:

Sport	Football	Tennis	Swimming	Basketball	Running
Number of Boys	50	25	35	40	20
Number of Girls	10	25	20	35	30

a Represent the previous data using the double bar graph:



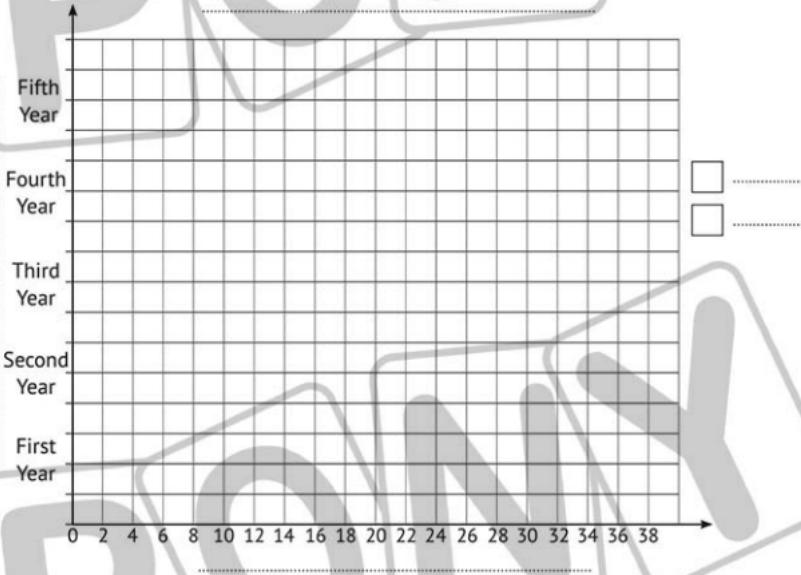
b Answer the following questions:

- 1 What sport do the largest number of boys play? .....
- 2 What sport do the least number of boys play? .....
- 3 What is the sport in which the number of boys and the number of girls are equal? .....
- 4 How many students prefer swimming? .....
- 5 How many more girls than boys prefer running? .....

## Fractions, Decimals, and Proportional Relationships

7 The following table shows the **number of goals** scored by Al-Ahly and Zamalek during 5 consecutive years in the Egyptian League. Represent the following data using the **double bar graph**, then answer:

Year	First	Second	Third	Fourth	Fifth
Al-Ahly	38	34	36	32	32
Zamalek	32	36	30	32	36



a Which club scored the **greatest** number of goals in the **first** year?

b In which year are the two clubs **equal** in the number of goals?

c What is the total number of goals scored by each of the **two** clubs in the **third** year?

# Assessment

# on Lesson 1

Unit 11

## 1 Choose the correct answer:

a  $5 - \frac{2}{5} =$  ..... (5  $\frac{2}{3}$  or 4  $\frac{1}{3}$  or 5  $\frac{1}{3}$  or 4  $\frac{2}{3}$ )

b Five-eighths = ..... ( $\frac{5}{8}$  or  $\frac{5}{13}$  or  $\frac{8}{5}$  or  $\frac{8}{13}$ )

c  $\frac{4}{7}$    $\frac{4}{5}$  ..... ( $\geq$  or  $>$  or  $=$  or  $<$ )

d 15 Tents = ..... (10.5 or 1.05 or 10.05 or 1.5)

e The place value of the digit 3 in 25.43 is ..... (Ones or Hundredths or Tents)

## 2 Complete the following:

a  $4 \frac{3}{7} =$  ..... (In improper fraction form)

b In the fraction  $\frac{4}{8}$ , the numerator = ..... the denominator.

c If  $\frac{5}{10} = \frac{1}{2}$  and  $\frac{4}{8} = \frac{1}{2}$  , then:  $\frac{5}{8}$    $\frac{4}{10}$ . (> or = or <)

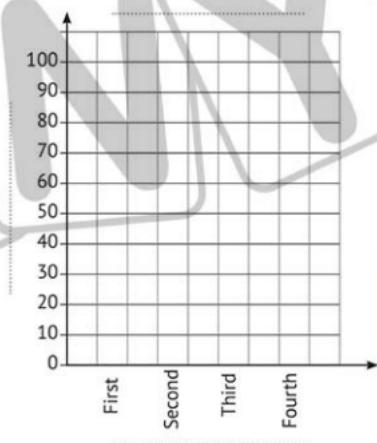
d  $40 + 3 + 0.09 =$  ..... (In decimal form)

e Fifty and six-tenths = ..... (In decimal form)

## 3 Answer the following:

The following table represents the **number of students** in the **first four classes** in a school. Represent the following data on the **bar graph**.

Class	Number of Students
First	60
Second	70
Third	100
Fourth	80



## Lessons 2&amp;3

1 The following data shows the **reading hours** of **20 students** in a week. Complete the **line plot graph** using the following data:



$2\frac{1}{4}$	2	$2\frac{3}{4}$	$1\frac{1}{4}$	$1\frac{3}{4}$
2	$2\frac{1}{2}$	1	$2\frac{3}{4}$	2
1	3	2	3	$1\frac{1}{2}$
$1\frac{1}{2}$	3	1	$1\frac{1}{4}$	2

X = .....

2 Hossam has a set of pens. He measured the **lengths** of these pens and recorded the following data in centimeters: Complete the **line plot graph** using the following data:



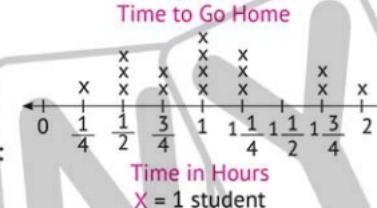
11	$10\frac{3}{5}$	11	$10\frac{1}{5}$
$10\frac{1}{5}$	$10\frac{3}{5}$	11	$10\frac{3}{5}$
$10\frac{2}{5}$	$10\frac{2}{5}$	11	10
$10\frac{1}{5}$	11	$10\frac{3}{5}$	10

X = .....

3 The opposite line plot graph shows how long it took for a number of students to go home in hours after school time:

• Answer the following questions:

- How many students have their time recorded? .....
- How many students take less than an hour to go home? .....
- How many students take more than an hour to go home? .....
- How many students take one hour to go home? .....
- What time isn't represented in the data? .....



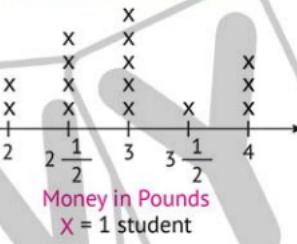
4 The opposite line plot graph

shows how many pounds a group of students spent at school during break:

• Answer the following questions:

- How many students recorded the amounts they spent? .....
- What is the most frequent amount? .....
- How many students spent 3 pounds? .....
- How many students spent 3 pounds or more? .....
- How many more students spent 4 pounds than those who spent 2 pounds? .....

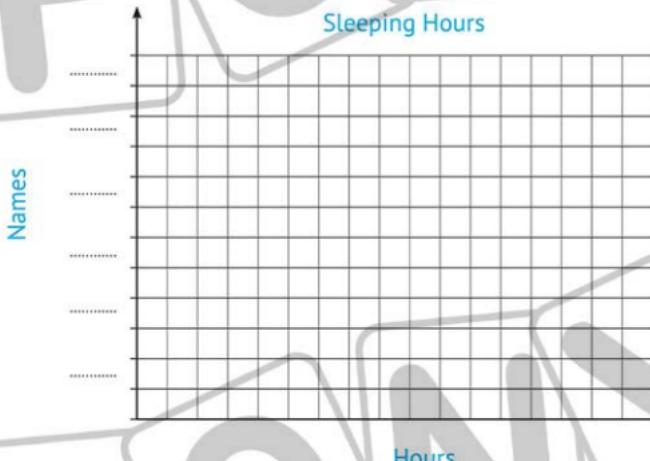
Money Spent During Break



5 The following table shows the number of **sleeping hours** per day for a number of students:

Name	Ahmed	Omar	Malek	Jana	Youssef	Ibrahim
Sleeping Hours	7	$6\frac{1}{2}$	$7\frac{1}{2}$	8	7	$8\frac{1}{2}$

a Represent the previous data using a **bar graph**.



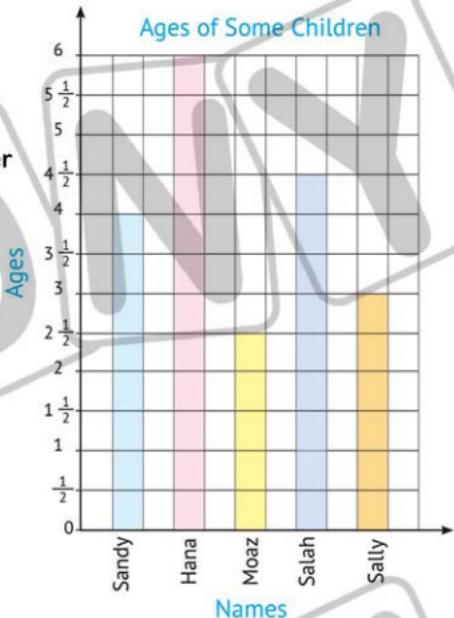
b Answer the following questions:

- 1 Who spends the **most** time sleeping?
- 2 Who spends the **least** time sleeping?
- 3 How many more hours does **Jana** spend sleeping than **Omar**?

6 The opposite bar graph shows the **ages of some children**. Complete the following table, then answer the questions:

a

Name	Age
Sandy	.....
Hana	.....
Moaz	.....
Salah	.....
Sally	.....



b Answer the following questions:

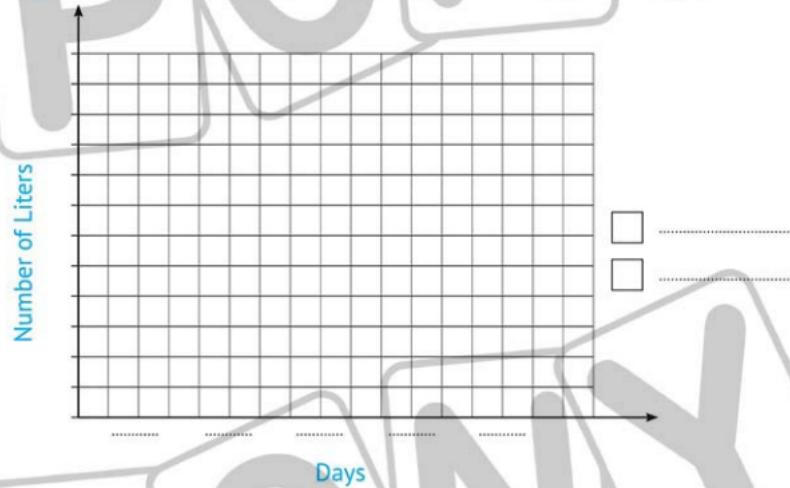
- 1 Who is the **oldest** child?  
.....
- 2 Who is the **youngest** child?  
.....
- 3 What are the ages of **Salah** and **Moaz** together?  
.....
- 4 What is the **difference** between **Salah's** age and **Hana's** age?  
.....
- 5 What are the **total ages** of **Sandy**, **Sally**, and **Salah**?  
.....

## Fractions, Decimals, and Proportional Relationships

7 The following table shows the amount of water Hazem and Kareem drank in 5 day in liters.

a Represent this data using the double bar graph:

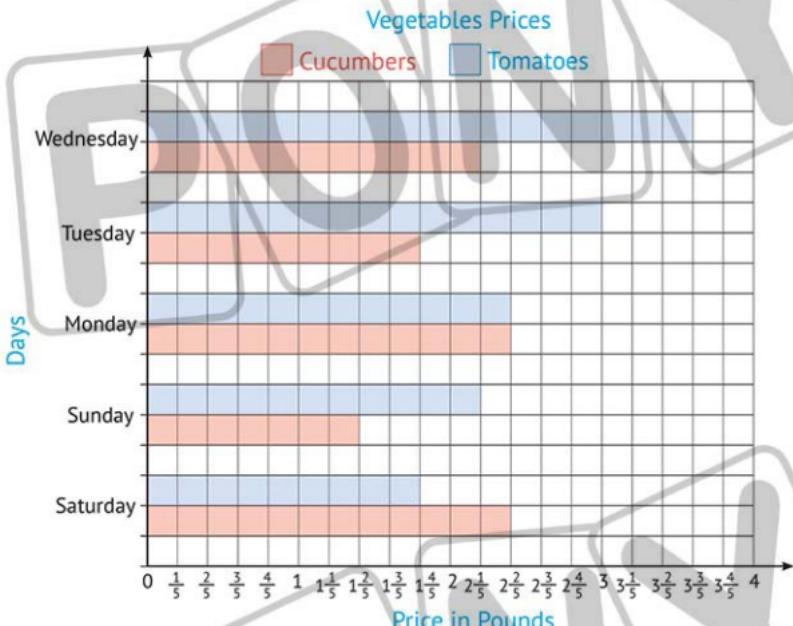
Day	Saturday	Sunday	Monday	Tuesday	Wednesday
Hazem	2	$1\frac{3}{4}$	$2\frac{1}{2}$	$2\frac{3}{4}$	3
Kareem	$1\frac{1}{2}$	$2\frac{1}{4}$	$2\frac{1}{4}$	$2\frac{3}{4}$	2



b Answer the following questions:

- What is the sum of what Hazem and Kareem drank on Sunday?
- What is the difference between what Hazem and Kareem drank on Tuesday?
- On which day did Hazem drink the greatest amount of water?
- On which day did Kareem drink the least amount of water?

8 The following double bar graph shows the comparison of **vegetables** prices (cucumbers and tomatoes) on **5** consecutive days. Study the graph, then complete the table and answer the questions.



Day	Saturday	Sunday	Monday	Tuesday	Wednesday
Cucumbers	.....	.....	.....	.....	.....
Tomatoes	.....	.....	.....	.....	.....

a What is the **total** price of tomatoes and cucumbers on **Saturday**? .....

b How much more do **tomatoes** cost than **cucumbers** on **Tuesday**? .....

c On which day were the prices of tomatoes and cucumbers **equal**? .....

d On which day was the price of tomatoes **less than** the price of cucumbers? .....

# Assessment

# on Lessons 2&3

Unit 11

## 1 Choose the correct answer:

a  $1.35$    $13\frac{5}{100}$

b  $\frac{3}{5}$    $\frac{3}{8}$

c  $\frac{3}{6} =$  .....

d  $30 + 0.3 =$  .....

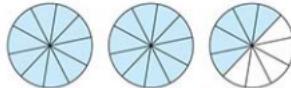
( $\geq$  or  $>$  or  $=$  or  $<$ )

( $\geq$  or  $>$  or  $=$  or  $<$ )

( $\frac{5}{10}$  or  $\frac{15}{10}$  or  $\frac{3}{2}$  or  $\frac{1}{3}$ )

(30.3 or 30.03 or 3.03 or 3.3)

e The decimal representing the shaded parts of the opposite figure is .....



(3.5 or 5.3 or 2.5 or 5.2)

## 2 Complete the following:

a The place value of the digit 6 in 24.86 is .....

b  $5\frac{3}{4} =$  .....

(Improper fraction)

c The number 37.08 in word form: .....

d  $3 = \frac{3}{10} = \frac{3}{100}$

e The numerator of the proper fraction is ..... than its denominator.

## 3 Answer the following:

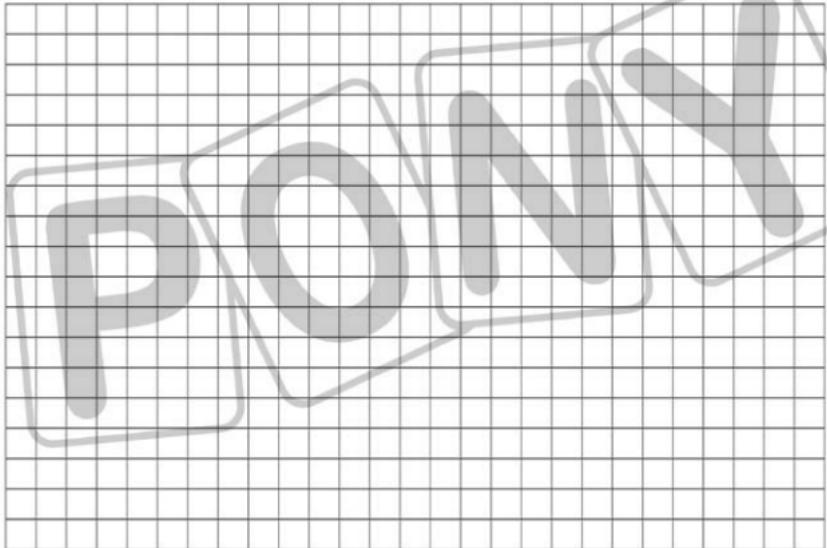
a Arrange the following fractions **ascendingly**:

$$\frac{3}{5}, \frac{2}{2}, \frac{3}{2}, \frac{3}{8}$$

b The following table shows the **average heights** of **boys** and **girls** in the first four classes at a school in meters:

Class	First	Second	Third	Fourth
Boys	$\frac{4}{5}$	$1\frac{1}{5}$	$1\frac{2}{5}$	$1\frac{3}{5}$
Girls	$\frac{3}{5}$	1	$1\frac{1}{5}$	$1\frac{3}{5}$

- Represent the previous data using a **double bar graph**.



# Assessment 1

on



Unit 11

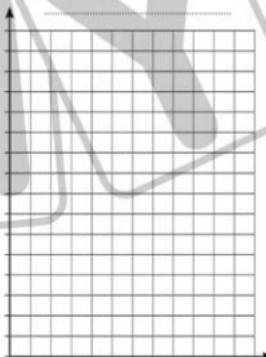
First: Write the appropriate graph type for each of the following: (Bar Graph - Double Bar Graph - Line Plot Graph)

- 1 The number of boys and girls in the first four grades of a school. (.....)
- 2 The favourite animal of a group of boys and girls. (.....)
- 3 Population number in some Egyptian cities. (.....)
- 4 The price of one type of vegetables within 7 days. (.....)
- 5 The favourite game of a number of students. (.....)
- 6 The means of transportation that a number of students use to go to school. (.....)
- 7 The season of the year preferred by a number of people. (.....)

Second: The following table shows the values of book sales in 1,000 LE of a book store during the first four months of two years:

Month	January	February	March	April
2020	5	$5\frac{1}{2}$	6	$5\frac{1}{2}$
2021	$7\frac{1}{2}$	5	$6\frac{1}{2}$	7

- 1 Represent this data using the double bar graph.
- 2 What is the month with the highest sales in 2020? .....
- 3 What is the month with the least sales in 2021? .....
- 4 What are the total sales of April in the two years? .....



Third: The following table shows the **favorite seasons** for a number of students:

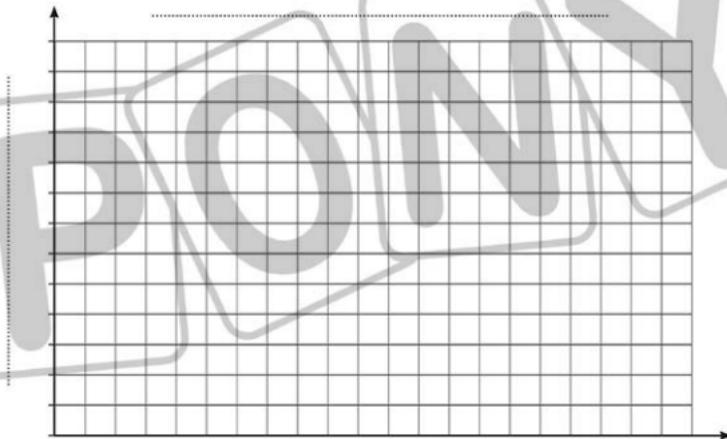
1 Complete the following table:

Favorite Season	Winter	Spring	Summer	Autumn
Tally				
Number of Students	8	10	9	9

2 Represent this data using the following **line plot graph**:



3 Represent this data using the following **horizontal bar graph**:



# Assessment 2

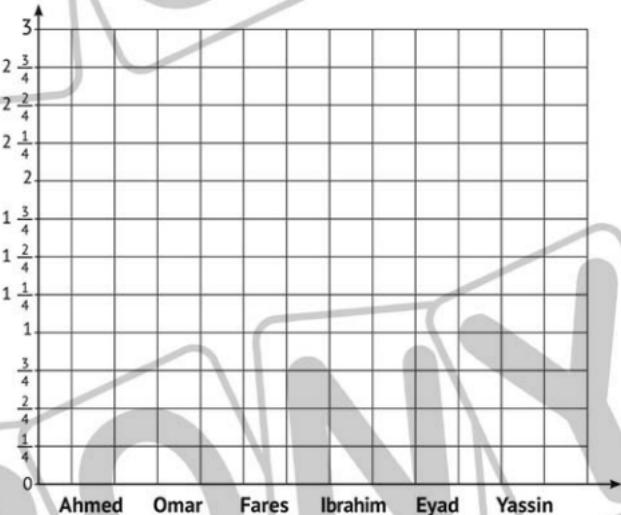
on



First: 6 students roll a ball of mass 10 kg as far as possible and the results are as shown in the following table:

Student	Ahmed	Omar	Fares	Ibrahim	Eyad	Yassin
Distance	$1 \frac{1}{4}$ m	$\frac{3}{4}$ m	$1 \frac{3}{4}$ m	$2 \frac{1}{2}$ m	$\frac{3}{4}$ m	$\frac{1}{2}$ m

a Represent this data using the following bar graph.

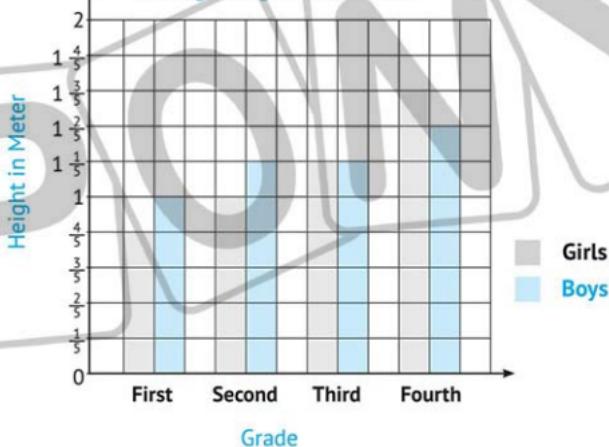


b Answer the following:

- 1 Who rolled the ball the **longest** distance? .....
- 2 Who rolled the ball the **shortest** distance? .....
- 3 What is the **total** distance that Omar and Fares rolled the ball together? .....
- 4 How much **longer** is the distance of the ball rolled by Ibrahim than by Yassin? .....

Second: Use the following graph to complete the data in the table, then answer:

Average Height of Students



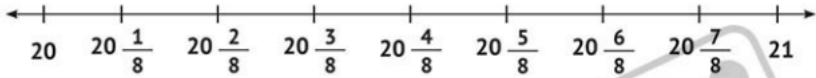
Grade	First	Second	Third	Fourth
Average Height of Girls				
Average Height of Boys				

- Answer the following:
  - What is the average height of boys in the second grade? .....
  - In which class is the average height of girls equal to the average height of boys? .....
  - In which class is the average height of girls greater than the average height of boys? .....
  - How much more is the average height of boys greater than the average height of girls in the first grade? .....

Third: Ramy works in palm cultivation, and the following data shows the height of the palms that are planted at the same time:

$20 \frac{1}{8}$ m	$20 \frac{2}{8}$ m	$20 \frac{1}{8}$ m	$20 \frac{3}{8}$ m	$20 \frac{1}{8}$ m
$20 \frac{3}{8}$ m	$20 \frac{5}{8}$ m	$20 \frac{7}{8}$ m	$20 \frac{5}{8}$ m	$20 \frac{1}{8}$ m

a) Represent this data using the following line plot graph:



x =

b) Answer the following:

1 How many palm trees are represented on the graph?

2 What is the most frequent height of the palm trees?

3 What heights are on the number line that are not represented?

# Theme **4**

## Applications of Geometry and Measurement



### Unit 12 Geometry

Concept 12.1: Geometric Concepts

Concept 12.2: Classifying Shapes

### Unit 13 Angles of a Circle

Concept 13.1: Breaking the Circle Into Angles

Concept 13.2: Measuring and Drawing Angles

## Concept 12.1 Geometric Concepts

## Lessons 1&amp;2

1 Complete following the tables:

	Figure	Word	Symbol
a			
b			
c			
d			
e			
f			
g			
h			

2 Draw:

a Line segment AB

b Ray CD

c Straight line EF

d 

e 

f 

## 3 Choose the correct name of each of the following:

a A — B

b X — Y

c C — D

d E — F

e M — N

f P — Q

(AB) or AB or BA or AB

(XY) or XY or YX or XY

(CD) or CD or DC or CD

(EF) or EF or FE or EF

(NM) or NM or NM or MN

(QP) or PQ or QP or PQ

## 4 Match:

a BA

b BA

c BA

d AB

1 A — B

2 A — B

3 A — B

4 A — B

## 5 Complete the following:

a A line segment has ..... end point(s).

b A ray is a part of a line that has ..... starting point (s) and ..... end point (s).

c The opposite figure is called ..... or ..... A — B

d The opposite figure is called ..... , X — Y and its starting point is ..... and it passes through point ..... .

e The opposite figure is called ..... or ..... K — L

## Applications of Geometry and Measurement

## 6 Choose the correct answer:

a A ..... is a part of a line that has 2 end points.  
(line segment  ray  straight line)

b A ..... is a part of a line that has a starting point, but no endpoint. It continues forever in only one direction.  
(line segment  ray  straight line)

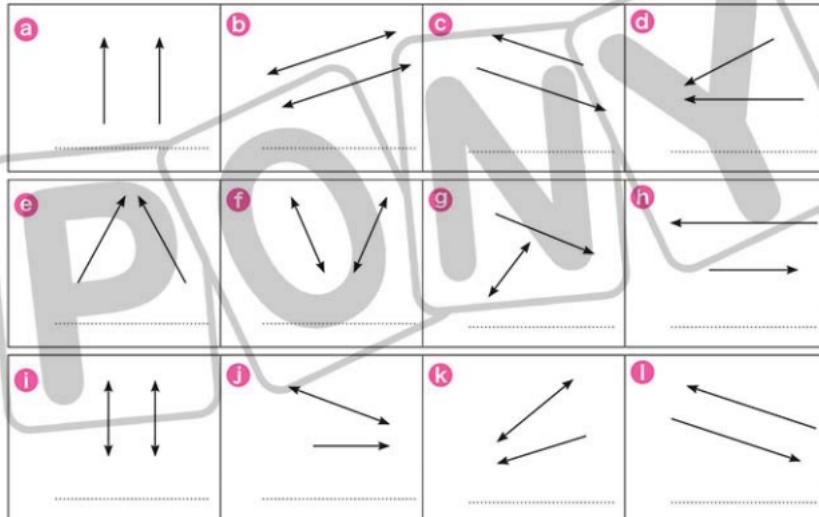
c A ..... is a line that continues forever in both directions.  
(line segment  ray  straight line)

d The opposite figure is called .....  (CB  BC  CB  BC )

e The opposite figure is called .....  (AB  AB  BA  BA )

f The opposite figure is called .....  (YX  XY  YX  XY )

## 7 Note the following pairs of straight lines and rays, extend the straight lines or rays in each image, and determine whether the lines are “intersecting or parallel”



8 Draw:

a  $\overrightarrow{EF}$  perpendicular to  $\overrightarrow{GH}$

b  $\overrightarrow{AB}$  perpendicular to  $\overrightarrow{CD}$

c  $\overrightarrow{CD}$  parallel to  $\overrightarrow{AB}$

d  $\overrightarrow{CD}$  parallel to  $\overrightarrow{AB}$

e  $\overrightarrow{XY}$  parallel to  $\overrightarrow{DE}$

f  $\overrightarrow{QR}$  perpendicular to  $\overrightarrow{TS}$

g  $\overrightarrow{RS}$  perpendicular to  $\overrightarrow{PQ}$

9 Use the following figure to answer the questions, where **ABCD** is a rectangle:

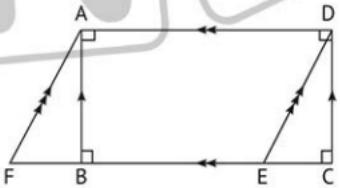
a  $\overline{BA}$  and ..... are parallel.

b  $\overline{ED}$  and ..... are parallel.

c  $\overline{DA}$  and ..... are parallel.

d  $\overline{CB}$  and  $\overline{AB}$  are .....

e  $\overline{DC}$  and  $\overline{CB}$  are .....



## Applications of Geometry and Measurement

10 The following figure  $XYZL$  is a square. Choose the correct answer from the brackets:

a  $\overline{LX}$  and ..... are parallel.

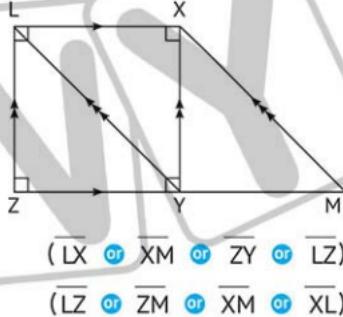
( $\overline{ZL}$  or  $\overline{XY}$  or  $\overline{XM}$  or  $\overline{ZM}$ )

b  $\overline{LX}$  and ..... are perpendicular.

( $\overline{XY}$  or  $\overline{MY}$  or  $\overline{XM}$  or  $\overline{LY}$ )

c  $\overline{LY}$  and ..... are parallel.

$\overline{XY}$  and ..... are parallel.



11 Use the following figure to answer the questions:

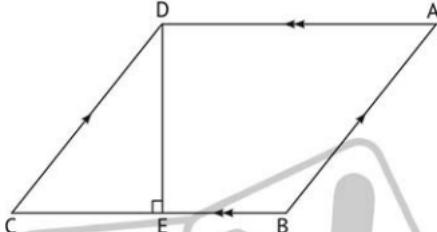
a The two line segments  $AD$  and ..... are parallel.

b The two line segments  $AB$  and ..... are parallel.

c The two line segments  $DE$  and  $AD$  are .....

d The two line segments  $CD$  and  $AB$  are .....

e The two line segments  $CB$  and  $DE$  are intersecting at the point .....



12 Use the following figure to choose the correct answer from the brackets:

a  $\overline{XY}$  and ..... are parallel.

( $\overline{MY}$  or  $\overline{ZX}$  or  $\overline{ZY}$  or  $\overline{MN}$ )

b  $\overline{XZ}$  and ..... are perpendicular.

( $\overline{ZY}$  or  $\overline{NZ}$  or  $\overline{XY}$  or  $\overline{NM}$ )

c  $\overline{ZM}$  and ..... are perpendicular.

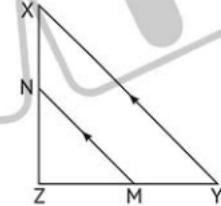
( $\overline{MN}$  or  $\overline{XY}$  or  $\overline{ZN}$  or  $\overline{ZM}$ )

d  $\overrightarrow{XN}$  and  $\overrightarrow{YM}$  are intersecting at point .....

( $Z$  or  $N$  or  $Y$  or  $X$ )

e  $\overline{XZ}$  and  $\overline{MN}$  are intersecting at point .....

( $Z$  or  $X$  or  $N$  or  $M$ )



# Assessment

# on Lessons 1&2

## Unit 12

### 1 Choose the correct answer:

a  $32 \frac{1}{10} =$  ..... (3,210 or 32.1 or 32.01 or 3.21)

b 5 Tens + 3 Ones + 2 Tenths + 3 Hundredths = ..... (53.32 or 53.23 or 35.32 or 32.35)

c The opposite figure is called a ..... 

(straight line or ray or line segment or point)

d The ray is a part of a line that has ..... starting point(s). (1 or 2 or 3 or no)

e  $\frac{1}{7} + \frac{1}{7} + \frac{1}{7} =$  .....  $(\frac{3}{21} \text{ or } \frac{1}{21} \text{ or } \frac{3}{7} \text{ or } 24)$

### 2 Complete the following:

a  $20 + 0.3 + 0.05 =$  .....

b ..... is a line that continues forever in both directions.

c  $\frac{5}{8} =$  ..... + ..... + ..... + ..... + .....

d ..... is a pair of lines that has two end points.

e The two intersecting lines intersect at ..... point(s).

### 3 Draw:

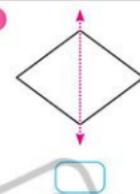
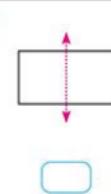
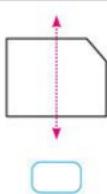
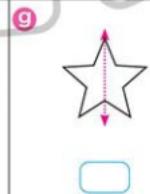
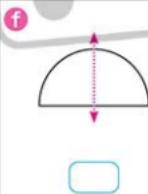
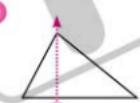
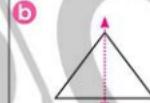
a AB parallel to CD

b EF parallel to GH

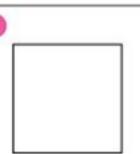
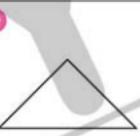
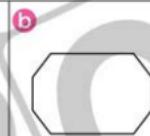
c IJ perpendicular to KL

## Lessons 3&amp;4

1 Put a tick (✓) if the drawn line is a **line of symmetry**:



2 Draw the **line(s) of symmetry** for each of the following shapes:



3 Draw the **lines of symmetry** for the following letters and **symbols**, if any:

A

B

C

D

E

F

G

H

I

J

K

L

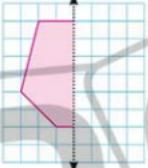
M

N

O

4 Half of an image and the **line of symmetry** are shown. Draw the **rest** of the image to complete each shape:

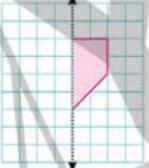
a



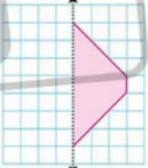
b



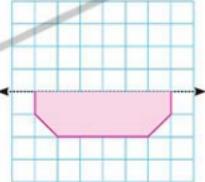
c



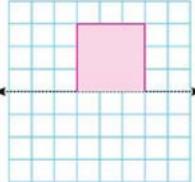
d



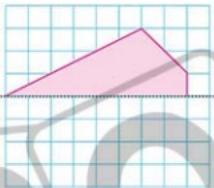
e



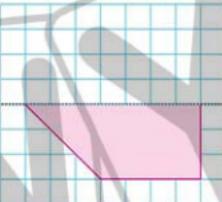
f



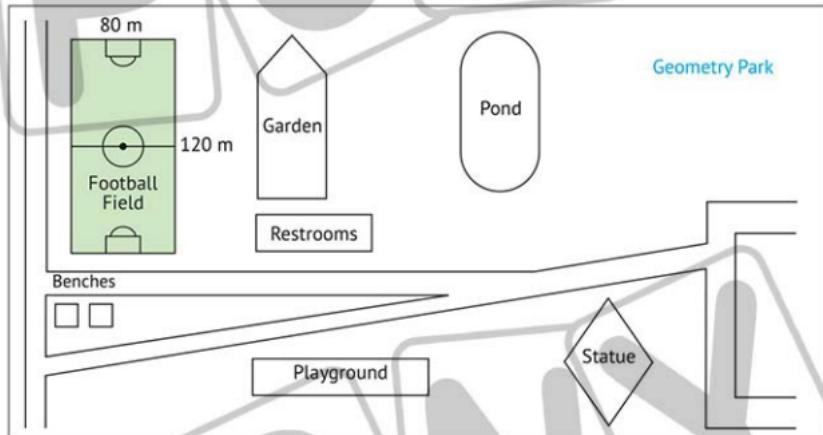
g



h



5 Look at the picture of the park, and then answer:



- What is the area of the **football field**? \_\_\_\_\_
- What is the perimeter of the **football field**? \_\_\_\_\_
- What shape do the **restrooms** represent? \_\_\_\_\_
- Draw lines of symmetry for the **statue**.
- Draw a line of symmetry for the **garden**.
- Color two **parallel** roads in red.
- Color two **perpendicular** roads in blue.

# Assessment

# on Lessons 3&4

## Unit 12

### 1 Choose the correct answer:

a The value of the digit 8 in 2.08 is ..... (0.08 or 0.8 or or 80)

b  $24 \frac{7}{100} =$  ..... (20.47 or 24.7 or 2.47 or 24.07)

c  $\frac{6}{8} =$  ..... ( $\frac{2}{4} + \frac{2}{4} + \frac{2}{4}$  or  $\frac{6}{4} + \frac{6}{4}$  or  $\frac{3}{8} + \frac{3}{8}$  or  $\frac{3}{4} + \frac{3}{4}$ )

d The opposite figure is called ..... (CB or BC or CB or BC)

e  $32.5 \square 3.25$  ( $<$  or = or  $>$  or  $>$ )



### 2 Complete the following:

a 8 Ones, 8 Hundredths = ..... (As a decimal)

b  $\frac{3}{9} = \frac{\underline{\hspace{1cm}}}{\underline{\hspace{1cm}}} = \frac{1}{\underline{\hspace{1cm}}}$

c The number of lines of symmetry that can be drawn in the opposite figure is ..... (An empty rectangular box for drawing lines of symmetry.)

d 3.24 (In word form): ..... .

e The number of lines of symmetry in a square is ..... .

### 3 Answer the following:

a Hana has a rectangular carpet; its length is 5 m and its width is 3 m. What is the area and perimeter of this carpet?  
.....

b Hossam bought a pen for  $4 \frac{3}{5}$  pounds, and a ruler for  $2 \frac{4}{5}$  pounds. How much did Hossam pay?  
.....

# Assessment on Concept 1



First: Choose the correct answer:

1 A ..... is a part of a straight line with two end points.  
(point  line segment  ray  straight line)

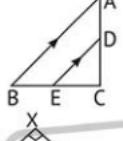
2 A ..... is a line that continues forever in both directions.  
(point  line segment  ray  straight line)

3 A ..... is a part of a line that has a starting point but no end point.  
(point  line segment  ray  straight line)

4  is called ..... (AB  or AB  or AB  or AB )

5  is called ..... (BC  or CB  or BC  or CB )

6  is called ..... (DC  or CD  or CD  or CD )

7 In the opposite figure:  
  
AB and ..... are parallel. (DE  or AC  or BC  or CE )

8 In the opposite figure:  
  
XY and ..... are perpendicular. (XY  or XZ  or YX  or ZY )

Second: Complete the following:

1 Two parallel straight lines meet at ..... point(s).

2 Two intersecting straight lines meet at ..... point(s).

3 The square has ..... line(s) of symmetry.

4 Any polygon consists of at least ..... sides.

5 The figure  is called .....

6 The ray is a part of a straight line that has ..... starting point(s)  
and ..... end point(s).

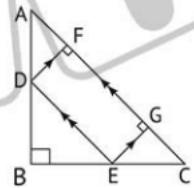
7 The opposite figure represents a ray starting at point ..... and passes through point .....



**Third: Answer the following:**

1 Use the following figure to answer the following questions:

- a  $\overline{AB}$  and ..... are perpendicular.
- b  $\overline{EG}$  and ..... are perpendicular.
- c  $\overline{DE}$  and ..... are parallel.
- d  $\overline{DF}$  and ..... are perpendicular.
- e  $\overline{EG}$  and ..... are parallel.



2 Draw:

a  $\overleftrightarrow{DC}$  parallel to  $\overleftrightarrow{AB}$



b  $\overleftrightarrow{DC}$  perpendicular to  $\overleftrightarrow{AB}$



c Ray AB

d Line(s) of symmetry



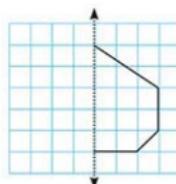
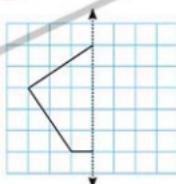
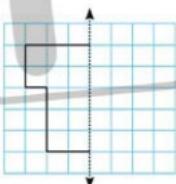
e Line(s) of symmetry



f Line(s) of symmetry



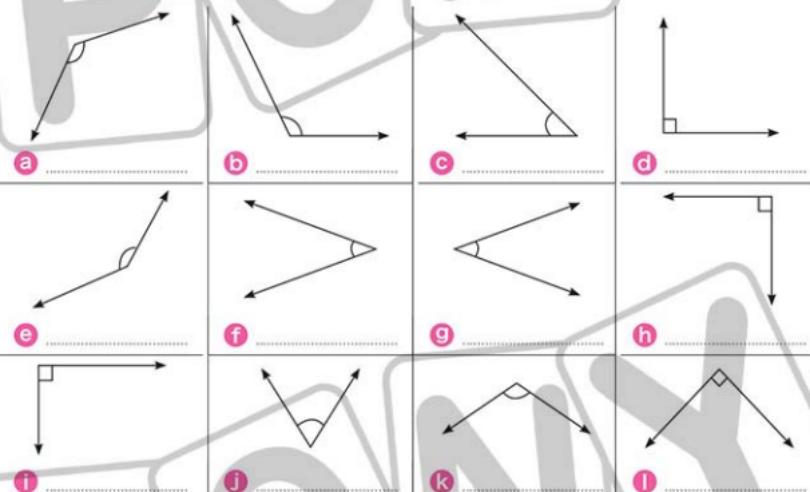
3 Draw the other half of the figure around the axis of symmetry to complete each shape:



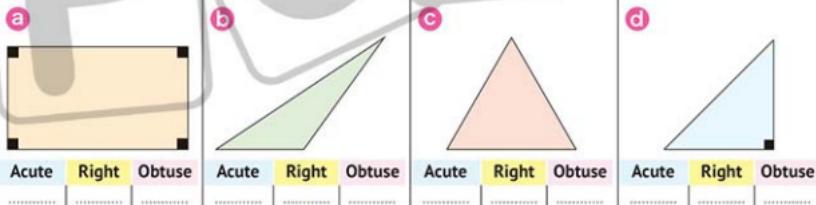
## Concept 12.2 Classifying Shapes

### Lessons 5&6

1 Look at the following angles, and write the type of each of them (acute angle, obtuse angle, right angle):



2 Write the numbers of acute angles, right angles, and obtuse angles in each figure:





Acute Right Obtuse



Acute Right Obtuse

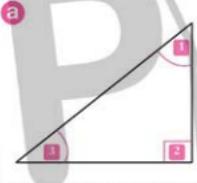


Acute Right Obtuse

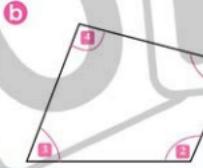


Acute Right Obtuse

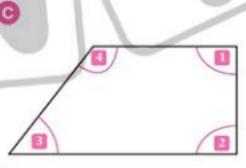
3 For each of the following shapes, write the type of each angle in the shape:



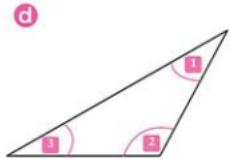
1  
2  
3



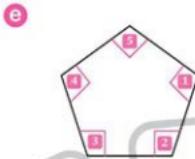
1  
2  
3  
4



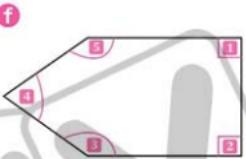
1  
2  
3  
4



1  
2  
3



1  
2  
3  
4  
5



1  
2  
3  
4  
5

4 Write the name of the part colored in red in each straight line:



5 Draw:

a An acute angle.

b A right angle.

c An obtuse angle.

d A triangle with an obtuse angle.

e A triangle with a right angle.

f A triangle with three acute angles.

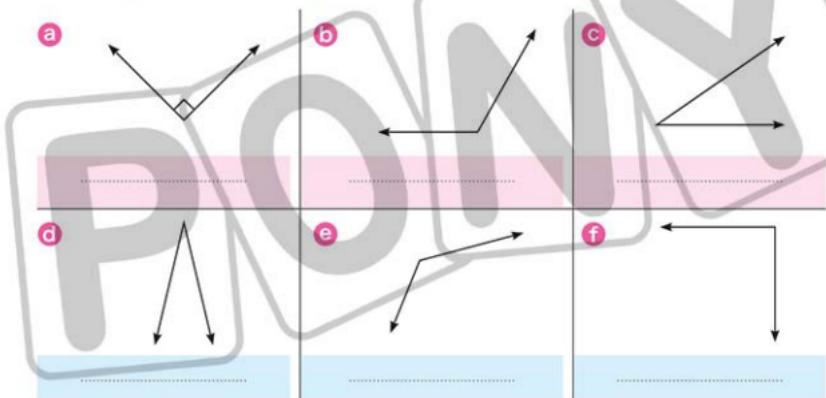
g A quadrilateral with two right angles, an acute angle, and an obtuse angle.

h A pentagon with all obtuse angles.

i A right angle and an acute angle sharing a starting point.

j An acute angle and an obtuse angle sharing a starting point.

6 Compare each of the following angles with the **right angle**, and write (greater than, equal to, or less than):

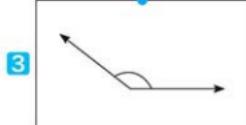
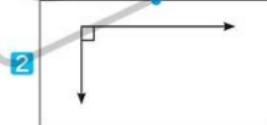


7 Match:

a Is equal to the right angle

b Is greater than the right angle

c Is less than the right angle

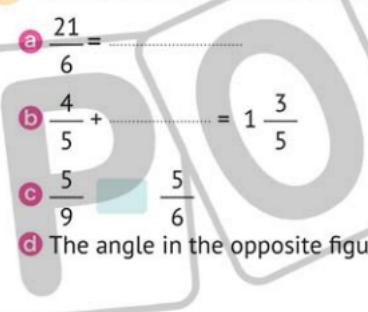


# Assessment

# on Lessons 5&6

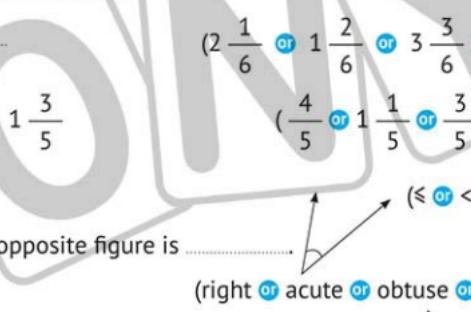
Unit 12

## 1 Choose the correct answer:

a  $\frac{21}{6} =$  .....  


b  $\frac{4}{5} +$  .....  $= 1 \frac{3}{5}$

c  $\frac{5}{9} -$  .....  $\frac{5}{6}$

d The angle in the opposite figure is .....  


(2  $\frac{1}{6}$  or 1  $\frac{2}{6}$  or 3  $\frac{3}{6}$  or 3  $\frac{1}{6}$ )

( $\frac{4}{5}$  or 1  $\frac{1}{5}$  or  $\frac{3}{5}$  or 1  $\frac{3}{5}$ )

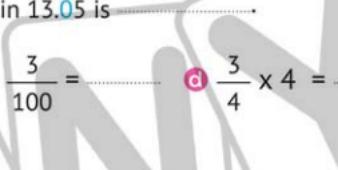
( $\leq$  or  $<$  or  $=$  or  $>$ )

(right or acute or obtuse or straight)

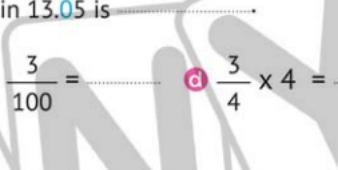
e The angle in the opposite figure is ..... a right angle.  


(greater than or less than or equal to)

## 2 Complete the following:

a The place value of the digit 0 in 13.05 is .....  


b  $\frac{3}{5} = \frac{6}{\square} = \frac{60}{\square}$

c  $2 \frac{3}{10} + \frac{3}{100} =$  .....  


d  $\frac{3}{4} \times 4 =$  .....  


## 3 Answer the following:

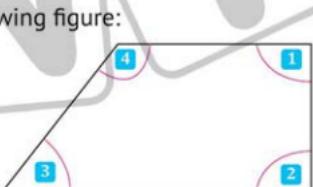
a Write the type of each angle in the following figure:

1

2

3

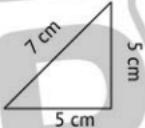
4



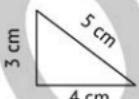
b Hisham bought 5 pens of the same type; the price of one pen is  $\frac{4}{5}$  pounds. What is the price of all pens?

## Lessons 7&amp;8

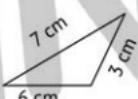
1 Classify each of the following triangles, then complete the table:



a



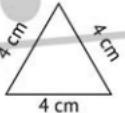
b



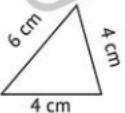
c



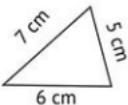
d



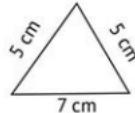
e



f



g



h

Triangle	Classification of triangles according to	
	the types of their angles	the lengths of their sides
a		
b		
c		
d		
e		
f		
g		
h		

2 Draw:

a An acute triangle.

b A right triangle.

c An obtuse triangle.

d An equilateral triangle.

e A scalene triangle.

f An isosceles triangle containing a right angle.

g A scalene triangle containing a right angle.

h An isosceles triangle containing an obtuse angle.

3 Complete the following:

a The type of the triangle whose side lengths are 3 cm, 4 cm, and 5 cm according to the lengths of its sides is a/an ..... triangle.

b The type of the triangle whose side lengths are 5 cm, 7 cm, and 5 cm according to the lengths of its sides is a/an ..... triangle.

c The type of the triangle whose side lengths are equal according to the lengths of its sides is a/an ..... triangle.

d The type of the triangle whose angles are acute according to the types of its angles is a/an ..... triangle.

e The type of the triangle that contains a right angle and two acute angles according to the types of its angles is a/an ..... triangle.

f The type of the triangle that contains one obtuse angle and two acute angles according to the types of its angles is a/an ..... triangle.

g Any triangle has at least ..... acute angle(s).

h The type of an equilateral triangle according to the types of its angles is a/an ..... triangle.

#### 4 Choose the correct answer from the brackets:

a A triangle whose side lengths are ..... cm, 4 cm, and 7 cm is a scalene triangle. (4 or 7 or 8)

b A triangle whose side lengths are 8 cm, 5 cm, and ..... cm is an isosceles triangle. (6 or 5 or 3 or 4)

c A triangle whose side lengths are 4 cm, 4 cm, and ..... cm is an equilateral triangle. (3 or 5 or 7 or 4)

d Any triangle has at least ..... acute angle(s). (0 or 1 or 2 or 3)

e All the angles of an acute triangle are ..... angles. (acute or right or obtuse)

f A triangle that has one right angle and two acute angles is called a/an ..... triangle. (acute or right or equilateral or obtuse)

g A triangle that has one obtuse angle and two acute angles is called a/an ..... triangle. (acute or right or equilateral or obtuse)

## 1 Choose the correct answer:

a A triangle whose side lengths are 5 cm, 7 cm, and 5 cm is called a/an triangle. (equilateral or isosceles or scalene)

b A triangle that has one right angle and two acute angles is called a/an triangle. (acute or obtuse or right or equilateral)

c  $4.15 =$  .....  $(4 \frac{15}{10} \text{ or } 4 \frac{15}{100} \text{ or } 14 \frac{5}{100} \text{ or } 14 \frac{5}{10})$

d  $20 + 0.3 =$  .....  $(2.3 \text{ or } 20.3 \text{ or } 2.03 \text{ or } 20.03)$

e The opposite figure is called ..... 

## 2 Complete the following:

a  $\frac{3}{4} = \frac{\dots}{16}$

b  $15.5 = 10 + 0.5 +$  .....

c The type of the triangle whose side lengths are 6 cm, 3 cm, and 4 cm according to the lengths of its sides is a/an triangle.

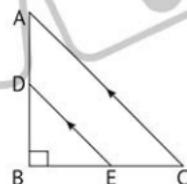
d The two parallel straight lines intersect at point(s).

## 3 Answer the following:

a In the opposite figure:

- 1  $\overline{AB}$  and ..... are perpendicular.
- 2  $\overline{DE}$  and ..... are parallel.
- 3 The type of the opposite triangle according to the types of its angles is .....

b Nehal has 5 LE. She bought candies for  $3 \frac{3}{4}$  LE. Find the remaining money with Nehal.



## Lesson

## 9

1 Write the name of each quadrilateral. Count how many pairs of parallel sides the shape has and classify the angles:

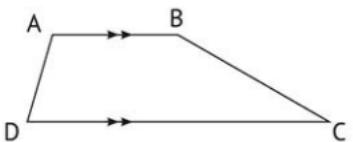
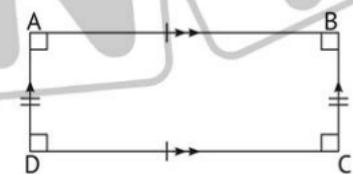
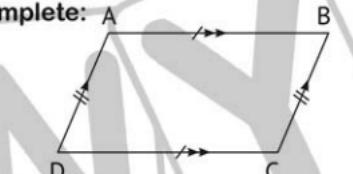
Quadrilateral	a	b	c	d
Name				
Number of Parallel Sides Pairs				
Classification of Angles				

2 Study the following figures, then complete:

a 1 The corresponding figure is called a .....  
 2 AB and ..... are parallel.  
 3 AD and ..... are parallel.

b 1 The corresponding figure is called a .....  
 2 AB and ..... are parallel.  
 3 AD and ..... are parallel.

c 1 The corresponding figure is called a .....  
 2 AB and ..... are parallel.



## 3 Complete:

a Quadrilaterals that have **two** pairs of parallel sides are:

1 .....  
2 .....  
3 .....1 .....  
2 .....  
3 .....

b Quadrilaterals that have **four** sides of equal lengths are:

1 .....  
2 .....1 .....  
2 .....

c Quadrilaterals that have **four** right angles are:

1 .....  
2 .....1 .....  
2 .....

d A parallelogram contains:

1 ..... of parallel sides.  
2 ..... of acute angles.  
3 ..... of obtuse angles.1 ..... of parallel sides.  
2 ..... of acute angles.  
3 ..... of obtuse angles.

e A rectangle contains:

1 ..... of parallel sides. 2 ..... right angles.

f A rhombus contains:

1 ..... of parallel sides. 2 ..... of acute angles.  
3 ..... of obtuse angles.

g A rhombus contains:

1 ..... of parallel sides. 2 ..... right angles.

h A quadrilateral that has a pair of parallel and unequal sides is

a .....

i A quadrilateral that has two pairs of parallel sides and all of its angles are right is a .....

j A quadrilateral with two pairs of parallel sides and all of its sides are equal, and all angles are right angles, is a .....

k A quadrilateral that has one pair of acute angles and one pair of obtuse angles, and two pairs of parallel sides with all sides equal is a .....

l A quadrilateral with exactly two pairs of parallel sides is a .....

#### 4 Choose the correct answer from the brackets:

a A ..... is a quadrilateral in which all sides are of equal length.  
(parallelogram or rhombus or rectangle or trapezium)

b A ..... is a quadrilateral in which all angles are right.  
(rectangle or rhombus or parallelogram or trapezium)

c A ..... is a quadrilateral with one pair of acute angles and one pair of obtuse angles. (square or rectangle or trapezium or parallelogram)

d A ..... is a quadrilateral with two pairs of parallel sides, and all of its sides are equal. (rectangle or rhombus or trapezium or parallelogram)

e A ..... is a quadrilateral with two pairs of parallel sides, and all its angles are right. (rectangle or rhombus or trapezium or parallelogram)

f A ..... is a quadrilateral with two pairs of parallel sides, all angles are right, and all its sides are equal in length.  
(rhombus or trapezium or parallelogram or square)

#### 5 Put (✓) in front of the appropriate properties for each quadrilateral:

Properties	Parallelogram	Rhombus	Rectangle	Square
Two pairs of parallel sides				
A pair of acute angles and a pair of obtuse angles				
All sides are equal				
All angles are right				

## 1 Choose the correct answer:

a A ..... is a quadrilateral with 4 right angles.  
(parallelogram or rhombus or trapezium or rectangle)

b A/An ..... triangle is a triangle that has one right angle and two acute angles.  
(acute or right or obtuse or equilateral)

c The type of triangle whose side lengths are 8 cm, 5 cm, and ..... cm according to the lengths of its sides is an isosceles triangle. (8 or 3 or 2 or 13)

d Twenty-eight and eight-hundredths = .....

e  $\frac{5}{8} \times \dots = \frac{5}{8}$  (0 or  $\frac{5}{5}$  or 5 or 8)

## 2 Complete the following:

a A ..... is a quadrilateral that contains 2 pairs of parallel sides, 4 right angles and all of its sides are equal in length.

b  $30 + 5 + 0.03 =$

c  $3 \frac{1}{5} - 2 =$

d  $3 \frac{1}{5} + 2 =$

## 3 Answer the following:

a Arrange the following fractions in an **ascending** order:  
 $\frac{3}{5}$ ,  $\frac{3}{8}$ ,  $\frac{3}{4}$ ,  $\frac{3}{7}$   
Ascending order: ....., ....., ....., .....

b Ashraf has a **rectangular** garden measuring 15 meters long and 10 meters wide. How many meters of fence does Ashraf need to surround the garden on all sides?

# Assessment on Concept 2

Unit 12



First: Choose the correct answer:

1 The opposite figure represents a/an ..... angle.  
(acute or right or obtuse or straight)

2 The opposite figure represents a/an ..... angle.  
(acute or right or obtuse or straight)

3 4 cm, 5cm, and ..... cm represent the lengths of the sides of an isosceles triangle.  
(4 or 9 or 1 or 20)

4 A triangle that contains one right angle and two acute angles is called a/an ..... triangle. (acute or right or obtuse or equilateral)

5 An acute triangle contains .....  
( 3 acute angles or an obtuse angle and 2 acute angles or one right angle and two acute angles or only two acute angles)

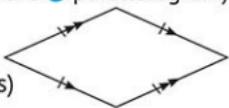
6 Any triangle has ..... acute angle(s) at least. (1 or 2 or 3 or 4)

7 A ..... is a quadrilateral with two pairs of parallel sides and all of its sides are equal.  
(rectangle or trapezium or rhombus or parallelogram)

8 A ..... is a quadrilateral with two pairs of parallel sides and all of its angles are right angles.  
(rectangle or trapezium or rhombus or parallelogram)

9 A ..... is a quadrilateral with only one pair of parallel sides.  
(rectangle or trapezium or square or parallelogram)

10 The opposite figure represents a .....  
(rectangle or square or trapezoid or rhombus)



## Applications of Geometry and Measurement

## Second: Complete the following:

1 The right angle is greater than the ..... angle.

2 ..... angle is a type of angle whose sides are perpendicular and form a square vertex.

3 A/An ..... is a geometric figure resulting from the meeting of two lines at one point.

4 6 cm, ..... cm, and ..... cm are the lengths of the sides of an equilateral triangle.

5 An obtuse triangle contains an obtuse angle and ..... acute angle(s).

6 In the opposite figure:

- EB and ..... are parallel.
- AC and ..... are perpendicular.

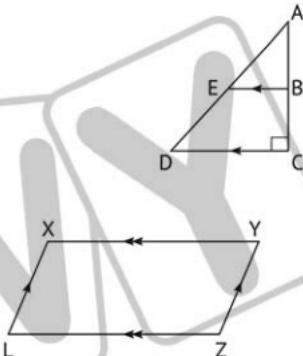
7 In the opposite figure:

- XY and ..... are parallel.
- ZY and ..... are parallel.

8 Quadrilaterals that have 4 equal sides are ..... and .....

9 Quadrilaterals that have 4 right angles are ..... and .....

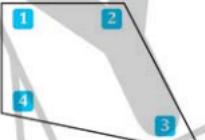
10 A quadrilateral that has only two parallel and unequal sides is called .....



## Third: Answer the following:

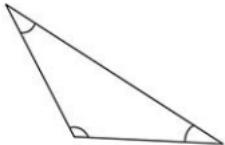
1 Using the following figure, write the type of each angle:

- a Angle (1) is a/an ..... angle.
- b Angle (2) is a/an ..... angle.
- c Angle (3) is a/an ..... angle.
- d Angle (4) is a/an ..... angle.



2 In the following figure, use the ruler to measure the sides of the triangle, then complete the following:

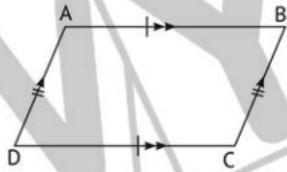
The type of the triangle according to:



- a The length of its sides is ..... .
- b The type of its angles is ..... .

3 Complete using the following figure:

- a  $\overline{AB}$  and ..... are parallel.
- b  $\overline{AD}$  and ..... are parallel.
- c  $AB =$  .....
- d  $AD =$  .....



# Assessment 1

on

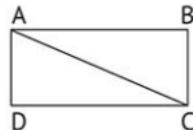


First: Complete the following:

- 1 The line segment has ..... end point(s).
- 2 The two parallel straight lines meet at ..... point(s).
- 3 The square has ..... line(s) of symmetry.
- 4 The type of triangle whose side lengths are 3 cm, 4 cm, and 5 cm according to the lengths of its sides is ..... triangle.
- 5 A quadrilateral that has a pair of parallel and unequal sides is .....

Second: Choose the correct answer:

- 1 A ..... is a line that continues forever in both directions.  
(line segment **or** ray **or** straight line **or** point)
- 2 The opposite figure represents a/an ..... angle.  
(acute **or** upright **or** obtuse **or** straight)
- 3 The triangle that contains one obtuse angle and two acute angles is called a/an ..... triangle.  
(acute **or** right **or** equilateral **or** obtuse)
- 4 A polygon with 3 sides is called a .....  
(triangle **or** quadrilateral **or** pentagon **or** rhombus)
- 5 In the opposite figure:  
AB and ..... are parallel.  
(AC **or** DC **or** BC **or** AD)



## Third: Study the following figure, then complete:

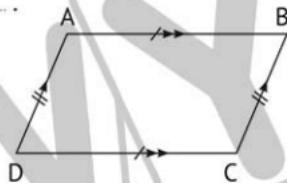
a The opposite figure is called ..... .

b  $\overline{AB}$  and ..... are parallel,  
 $AB =$  .....

c  $\overline{AD}$  and ..... are parallel,  
 $AD =$  .....

d Angles (B) and (D) are ..... angles.

e Angles (A) and (C) are ..... angles.



## Fourth: Answer the following:

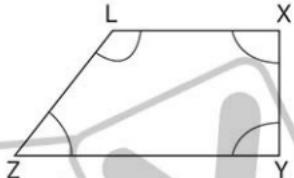
1 Write the type of each angle of the opposite shape:

a Angle ( $\angle X$ ) is a/an ..... angle.

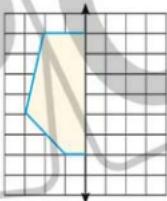
b Angle ( $\angle Y$ ) is a/an ..... angle.

c Angle ( $\angle Z$ ) is a/an ..... angle.

d Angle ( $\angle L$ ) is a/an ..... angle.



2 Draw the missing part to complete the drawn shape, as the straight line is the axis of symmetry:



3 Draw a right triangle:

# Assessment 2

on

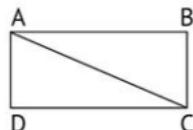


## First: Complete the following:

- 1 The ray is a part of a line that has ..... starting point(s) and ..... end point(s).
- 2 The two parallel straight lines meet at ..... point(s).
- 3 The type of triangle whose side lengths are 5 cm, 4 cm, and 3 cm according to the lengths of its sides is a/an ..... triangle.
- 4 The type of triangle whose all angles are acute according to the types of angles is a/an ..... triangle.
- 5 A quadrilateral that has two pairs of parallel sides is called .....

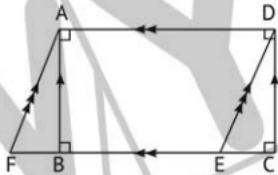
## Second: Choose the correct answer:

- 1 The opposite figure is called ..... .  
(BA **or** AB **or** BA **or**  $\overleftrightarrow{AB}$ )
- 2 The triangle whose side lengths are 4 cm, 4 cm, and ..... cm is an equilateral triangle.  
(3 **or** 4 **or** 8 **or** 12)
- 3 The opposite figure represents a/an ..... angle.  
(acute **or** right **or** obtuse **or** straight)
- 4 A polygon that has 4 sides and contains two pairs of parallel sides and all its angles are right angles is a ..... .  
(rhombus **or** parallelogram **or** rectangle **or** trapezium)
- 5 In the opposite figure:  
AB and ..... are parallel.  
(AC **or** AB **or** BC **or** DC)



**Third:** Use the following shape to answer the questions where ABCD is a rectangle:

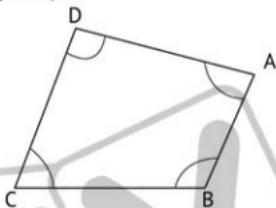
- a  $\overline{AB}$  and ..... are parallel.
- b  $\overline{DE}$  and ..... are parallel.
- c  $\overline{AD}$  and ..... are parallel.
- d  $\overline{BA}$  and  $\overline{BC}$  are .....
- e  $\overline{BC}$  and  $\overline{CD}$  are .....



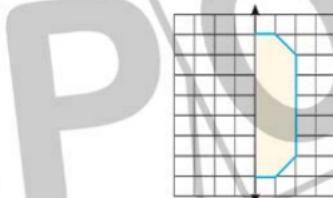
**Fourth:** Answer the following:

1 Write the type of each angle of the following shape:

- a  $\angle A$  is a/an ..... angle.
- b  $\angle B$  is a/an ..... angle.
- c  $\angle C$  is a/an ..... angle.
- d  $\angle D$  is a/an ..... angle.



2 Draw the missing part to complete the drawn shape, as the straight line is the axis of symmetry:



3 Draw an obtuse triangle

## Concept 13.1 Breaking the Circle Into Angles

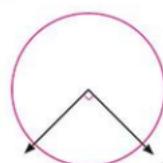
### Lesson

### 1

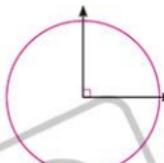
1 Write the angle type based on each measurement:

a $25^\circ$ :	b $50^\circ$ :
c $87^\circ$ :	d $90^\circ$ :
e $95^\circ$ :	f $110^\circ$ :
g $175^\circ$ :	h $180^\circ$ :

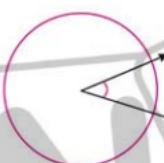
2 Write the angle type:



a angle



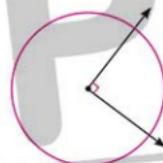
b angle



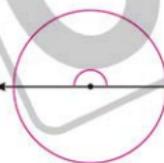
c angle



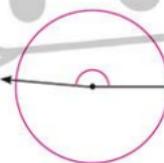
d angle



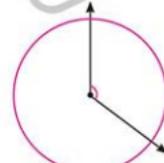
e angle



f angle



g angle



h angle

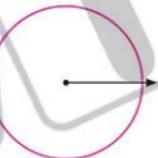
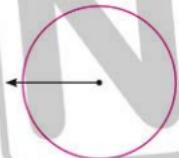
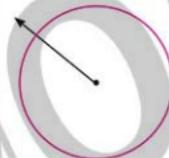
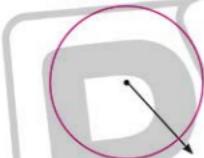
## 3 Draw:

a A straight angle

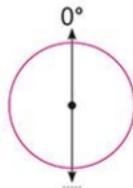
b A right angle

c An obtuse angle

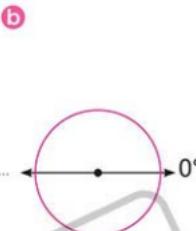
d An acute angle

4 Move clockwise from  $0^\circ$  and draw a right angle, then label  $90^\circ$  and  $180^\circ$  on each circle:

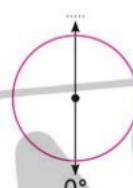
a



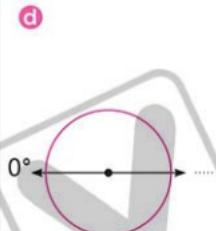
b



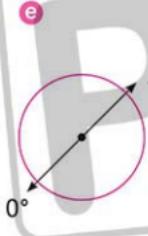
c



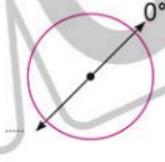
d



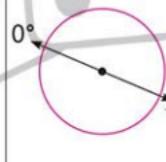
e



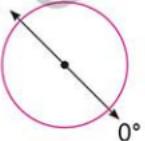
f



g



h



5 Move counterclockwise from  $0^\circ$  and draw a right angle. Then, label  $90^\circ$  and  $180^\circ$  on each circle:

a

 $0^\circ$ 

e

 $0^\circ$ 

b

 $0^\circ$ 

f

 $0^\circ$ 

c

 $0^\circ$ 

g

 $0^\circ$ 

d

 $0^\circ$ 

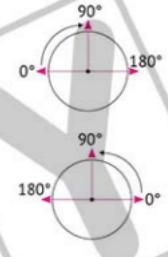
h

 $0^\circ$ 

6 Complete the following:

- ..... is the unit of angle measurement.
- If the circle is divided into 360 parts, then each part of the circle represents an angle whose measure is .....  $^\circ$ .
- The measure of a right angle is .....  $^\circ$ .
- The measure of a straight angle is .....  $^\circ$ .
- The measure of an acute angle is greater than .....  $^\circ$  and less than .....  $^\circ$ .
- The measure of an obtuse angle is greater than .....  $^\circ$  and less than .....  $^\circ$ .
- The straight angle is formed by ..... in opposite directions.

h) In the opposite figure, the direction of motion from  $0^\circ$  to  $180^\circ$  is .....



i) In the opposite figure, the direction of motion from  $0^\circ$  to  $180^\circ$  is .....

7 Choose the correct answer from the brackets:

a) An angle whose measure is  $35^\circ$  is called a/an ..... angle.  
(acute or right or obtuse or straight)

b) An angle whose measure is  $180^\circ$  is called a/an ..... angle.  
(acute or right or obtuse or straight)

c) An angle whose measure is  $108^\circ$  is called a/an ..... angle.  
(acute or right or obtuse or straight)

d) An angle whose measure is  $102^\circ$  is called a/an ..... angle.  
(acute or right or obtuse or straight)

e) An angle whose measure is ..... is called an acute angle.  
( $50^\circ$  or  $180^\circ$  or  $92^\circ$  or  $185^\circ$ )

f) An angle whose measure is ..... is called an obtuse angle.  
( $102^\circ$  or  $180^\circ$  or  $90^\circ$  or  $45^\circ$ )

g) An angle whose measure is ..... is called a straight angle.  
( $90^\circ$  or  $300^\circ$  or  $180^\circ$  or  $45^\circ$ )

h) An angle whose measure is ..... is called a right angle.  
( $360^\circ$  or  $180^\circ$  or  $45^\circ$  or  $90^\circ$ )

i) A right angle represents ..... of a circle.  
(quarter or half or three-quarters or three-eighths)

# Assessment

# on Lesson 1

Unit 13

## 1 Choose the correct answer:

a Five-sixths = .....

( $\frac{5}{6}$  or  $\frac{6}{5}$  or  $\frac{5}{11}$  or  $\frac{11}{6}$ )

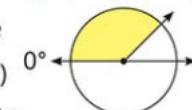
b  $4.03 =$  .....

( $4\frac{3}{10}$  or  $40\frac{3}{10}$  or  $4\frac{3}{100}$  or  $40\frac{3}{100}$ )

c An angle whose measure is  $108^\circ$  is called a/an ..... angle.

(straight or obtuse or right or acute)

d The corresponding figure represents an angle whose measure is about ..... ( $315^\circ$  or  $225^\circ$  or  $135^\circ$  or  $45^\circ$ )



e A ..... is a quadrilateral whose angles are all right.

(rectangle or rhombus or parallelogram or trapezium)

## 2 Complete the following:

a  $3 + \frac{1}{4} + \frac{1}{4} =$  .....

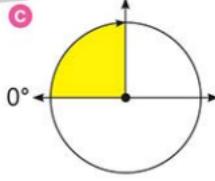
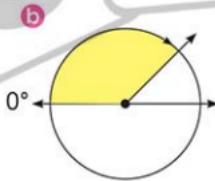
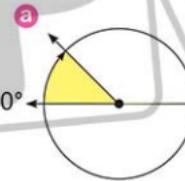
b  $20 + 0.05 + 3 =$  .....

c The measure of a straight angle is ..... °.

d The measure of a right angle is greater than the measure of a ..... angle.

e If a circle is divided into 4 equal parts, then each part represents a/an ..... angle.

## 3 Write the type of each of the following angles:



## Lesson 2

1 Write what the shaded part represents in each of the following:

<b>Fraction</b>	<b>Angle</b>	<b>Fraction</b>	<b>Angle</b>	<b>Fraction</b>	<b>Angle</b>
-----	o	-----	o	-----	o

<b>Fraction</b>	<b>Angle</b>	<b>Fraction</b>	<b>Angle</b>	<b>Fraction</b>	<b>Angle</b>
-----	o	-----	o	-----	o

2 Color the following circle models to represent the fraction shown. Write the angle of the shaded part:

<b>Fraction</b>	<b>Circle Model</b>	<b>Angle</b>	<b>Fraction</b>	<b>Circle Model</b>	<b>Angle</b>	<b>Fraction</b>	<b>Circle Model</b>	<b>Angle</b>	<b>Fraction</b>	<b>Circle Model</b>	<b>Angle</b>
<b>a</b> $\frac{8}{12}$		o	<b>b</b> $\frac{4}{12}$		o	<b>c</b> $\frac{2}{12}$		o	<b>d</b> $\frac{3}{4}$		o

3 Diaa is walking from one place to another through the city center.

Identify the **angles traveled** between the places in the city.

(Hint: Each section of the circle model measures  $30^\circ$ )



- a School and the mosque
- b School and the park
- c School and the train station
- d School and home
- e Mosque and the train station
- f Mosque and the park
- g Home and the park
- h Home and the train station
- i Train station and the park

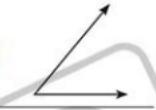
- About

4 Put a tick (✓) below the angle closest to the shown measurement:

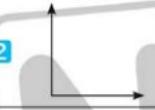
a

40°

1



2



3



b

80°

1



2



3



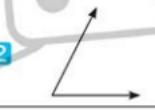
c

150°

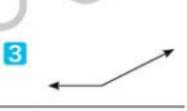
1



2



3



d

120°

1



2

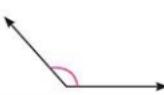


3



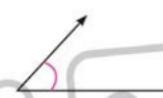
5 Circle the measurement closest to the angle shown:

a

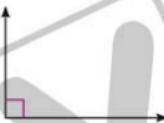


(180°, 130°, 80°, 40°) (90°, 180°, 100°, 50°) (150°, 100°, 90°, 0°)

b



c



d

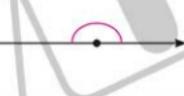


(150°, 120°, 90°, 0°) (175°, 105°, 95°, 65°) (180°, 90°, 108°, 80°)

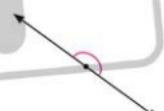
e



f



g

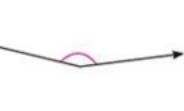


(80°, 180°, 150°, 108°) (150°, 100°, 40°, 80°) (180°, 150°, 100°, 0°)

h



i



# Assessment on Lesson 2

Unit 13

## 1 Choose the correct answer:

a  $\frac{3}{5} \times \frac{2}{3} = \dots$

( $\frac{3}{15}$  or  $\frac{2}{15}$  or  $\frac{5}{8}$  or  $\frac{6}{15}$ )

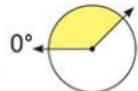
b  $3.15 = \dots$

( $31 \frac{5}{100}$  or  $3 \frac{15}{100}$  or  $31 \frac{5}{10}$  or  $3 \frac{15}{10}$ )

c An angle whose measure is  $120^\circ$  is called a/an ..... angle.

(acute or right or obtuse or straight)

d The measure of the angle representing the shaded part of the opposite circle is ..... ( $50^\circ$  or  $150^\circ$  or  $120^\circ$  or  $100^\circ$ )



e The measure of the opposite angle is about ..... .

( $120^\circ$  or  $90^\circ$  or  $30^\circ$  or  $180^\circ$ )



## 2 Complete the following:

a  $40 + 0.03 + 2 = \dots$

b  $5 \times \frac{1}{8} = \dots + \dots + \dots + \dots + \dots$

c A ..... is a quadrilateral with only a pair of parallel, unequal sides.

d The lengths 3 cm, 5 cm, and 7 cm are the lengths of the sides of a triangle classified as ..... according to the lengths of its sides.

## 3 Use the circle model and write what the shaded part represents:

a Angle measure =  
(about) ..... °



b Angle measure =  
(about) ..... °



# Assessment on Concept

1



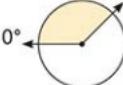
First: Choose the correct answer:

1 If you divide a circle into 4 parts, each part represents a/an ..... angle. (acute or obtuse or right or straight)

2 The measure of a straight angle is ..... ( $80^\circ$  or  $108^\circ$  or  $360^\circ$  or  $180^\circ$ )

3 The measure of an obtuse angle is less than the measure of a/an ..... angle. (acute or right or straight or zero)

4 The type of angle whose measure is  $91^\circ$  is a/an ..... angle. (acute or obtuse or right or straight)

5 The shaded part in the opposite circle represents an angle measuring about ..... 

( $90^\circ$  or  $135^\circ$  or  $180^\circ$  or  $270^\circ$ )

6 The shaded part of the circle represents an angle measuring about ..... 

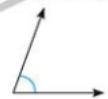
( $150^\circ$  or  $50^\circ$  or  $210^\circ$  or  $70^\circ$ )

7 Which of the following times is the clock hands' angle of about  $90^\circ$ ? 

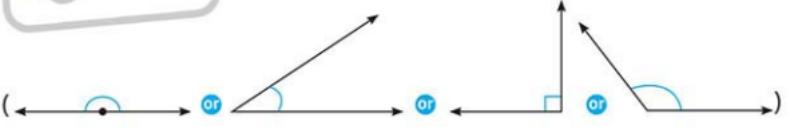
(2:00 or 12:30 or 2:45 or 3:00)

8 If the time is 8:10, then the hands of the clock will have an angle measuring about ..... 

( $120^\circ$  or  $180^\circ$  or  $240^\circ$  or  $60^\circ$ )

9 The opposite angle measures about ..... 

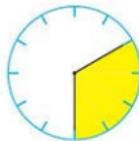
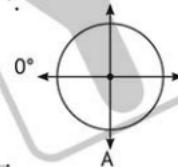
( $180^\circ$  or  $110^\circ$  or  $90^\circ$  or  $70^\circ$ )

10 The angle whose measure is  $120^\circ$  of the following angles is ..... 

**Second: Complete the following:**

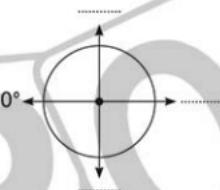
- 1 The unit of angle measurement is .....
- 2 If you divide the circle into two halves, then the half of the circle represents an angle whose measure is ..... °.
- 3 If you move clockwise in the opposite figure, the measurement of the angle that is written at point A is .....
- 4 The type of angle that measured 108° is .....
- 5 The measure of an acute angle is greater than ..... ° and less than ..... °.
- 6 The circle model is divided into 12 parts, each part representing an angle measuring .....
- 7 In the opposite figure, the shaded part is represented as follows:

a The fraction ..... b Angle measure is about: .....

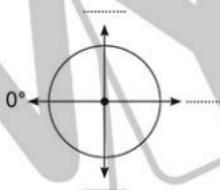


**Third: Answer the following:**

1 Move counterclockwise, and write down the angle measures in the marked places.



2 Move clockwise, and write down the angle measures in the marked places.



3 Color the following circle models to represent the fraction shown. Write the angle of the shaded part:

a  $\frac{1}{3}$

Angle measure = .....  
(about) ..... °



b  $\frac{3}{4}$

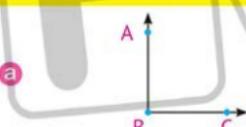
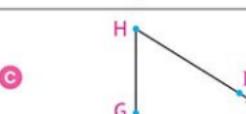
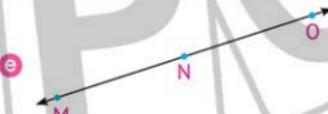
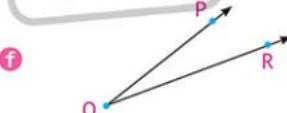
Angle measure = .....  
(about) ..... °



# Concept 13.2 Measuring and Drawing Angles

## Lessons 3&4

1 Write **three different names** for each angle:

Angle	Name 1	Name 2	Name 3
	$\angle \dots$	$\angle \dots$	$\angle \dots$
	$\angle \dots$	$\angle \dots$	$\angle \dots$
	$\angle \dots$	$\angle \dots$	$\angle \dots$
	$\angle \dots$	$\angle \dots$	$\angle \dots$
	$\angle \dots$	$\angle \dots$	$\angle \dots$
	$\angle \dots$	$\angle \dots$	$\angle \dots$

## 2 Determine the names of the angle rays, its vertex, and its type:

Theme ④

Angle	Ray (1)	Ray (2)	Vertex	Type
a	.....	.....	.....	.....
b	.....	.....	.....	.....
c	.....	.....	.....	.....
d	.....	.....	.....	.....
e	.....	.....	.....	.....
f	.....	.....	.....	.....
g	.....	.....	.....	.....

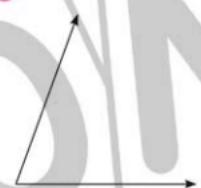
3 Classify the angle as **acute**, **obtuse**, or **right**. Then, use a **protractor** to find the angle measurement:

a



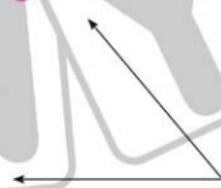
1 Type: .....  
2 Measure: .....

b



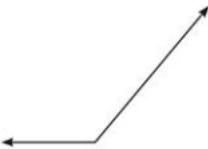
1 Type: .....  
2 Measure: .....

c



1 Type: .....  
2 Measure: .....

d



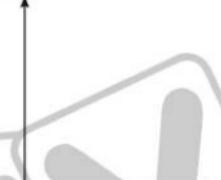
1 Type: .....  
2 Measure: .....

e



1 Type: .....  
2 Measure: .....

f



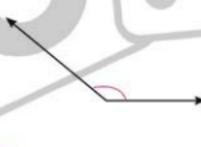
1 Type: .....  
2 Measure: .....

g



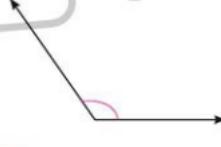
1 Type: .....  
2 Measure: .....

h



1 Type: .....  
2 Measure: .....

i



1 Type: .....  
2 Measure: .....

4 Use the protractor to measure the opposite angle, then complete:

a • Ray (1): ..... • Ray (2): .....

b Angle vertex: .....

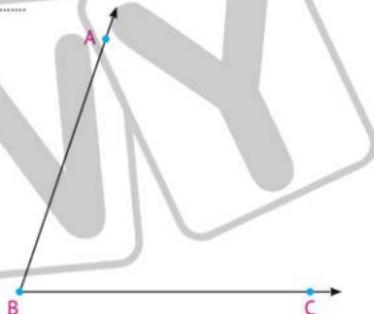
c Angle names:

1 ..... 2 .....

3 .....

d Angle type: .....

e Angle measure: .....



5 Use the protractor to measure the opposite angle, then complete:

a • Ray (1): ..... • Ray (2): .....

b Angle vertex: .....

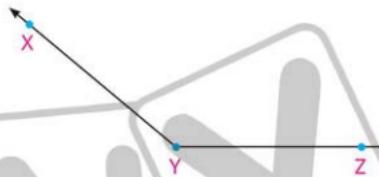
c Angle names:

1 ..... 2 .....

3 .....

d Angle type: .....

e Angle measure: .....



6 Use the protractor to measure the opposite angle, then complete:

a • Ray (1): ..... • Ray (2): .....

b Angle vertex: .....

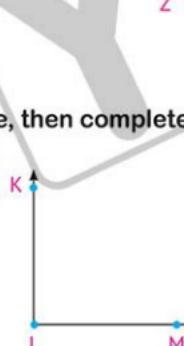
c Angle names:

1 ..... 2 .....

3 .....

d Angle type: .....

e Angle measure: .....



# Assessment

# on Lessons 3&4

## Unit 13

### 1 Choose the correct answer:

a  $\frac{3}{4}$    $\frac{3}{8}$

( $>$  or  $=$  or  $<$  or  $\leq$ )

b  $2 \frac{13}{100} =$  .....

(2.13 or 21.3 or 20.13 or 21.03)

c An angle of  $45^\circ$  is a/an ..... angle. (acute or right or obtuse or straight)

d An angle whose measure is ..... is an acute angle.

( $130^\circ$  or  $170^\circ$  or  $30^\circ$  or  $90^\circ$ )

### 2 Complete the following:

a The place value of the digit 4 in 2.45 is .....

b  $\frac{15}{7} =$  ..... (As a mixed number) c  $\frac{3}{4} = \frac{—}{8} = \frac{12}{—}$

d The vertex of an angle ABC is the point .....

e Seventy-five and three-hundredths = ..... (In decimal form)

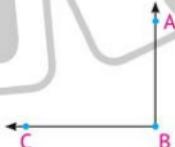
### 3 Answer the following:

a Use the protractor to measure the opposite angle, then complete:

1 Angle names:

2 Angle measure: .....

3 Angle type: .....



b Fares had  $4 \frac{15}{100}$  pounds, and his mother gave him  $3 \frac{5}{10}$  pounds.

What amount does he have now?

## Lessons 5&6

1 Without using a protractor, draw an estimate for each of the following angles:

a  $90^\circ$

b  $60^\circ$

c  $120^\circ$

d  $30^\circ$

e  $180^\circ$

f  $160^\circ$

g  $70^\circ$

h  $90^\circ$

2 Use the protractor to draw the following angles:

a 65°

b 55°

c 90°

d 75°

e 120°

f 100°

g 180°

h 145°

i 160°

j 30°

k 110°

l 85°

# Assessment on Lessons 5&6

Unit 13

## 1 Choose the correct answer:

a  $\frac{45}{30} = \dots$

( $\frac{9}{8}$  or  $\frac{8}{6}$  or  $\frac{9}{7}$  or  $\frac{3}{2}$ )

b The value of the digit 0 in 3.05 is ..... (10 or 1 or 0.1 or 0)

c An acute angle can have a measure of ..... °. (136 or 120 or 35 or 90)

d "0" is the Identity Property in the ..... process.

(multiplication or division or subtraction or addition)

e A ..... is a quadrilateral with 4 right angles.

(rhombus or trapezium or rectangle or parallelogram)

## 2 Complete the following:

a  $30.05 = \dots$  (As a fraction)

b If a circle is divided into 4 equal parts, then each part represents an angle whose measure is ..... °.

c  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \dots$

d  $3 \frac{2}{7} = \dots$  (As an improper fraction)

## 3 Complete the following:

Draw an angle of  $120^\circ$  using a protractor.

## Lesson

## 7

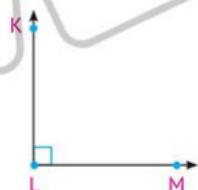
1 Use the protractor to measure the angle; record both numbers on the protractor scale. Explain which measurement makes sense for an angle and why.

a 1 Inside scale measurement is ..... °

2 Outside scale measurement is

..... °

3 ..... scale makes sense because  
the type of angle is .....

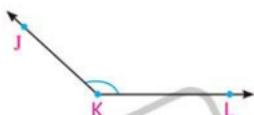


b 1 Inside scale measurement is ..... °

2 Outside scale measurement is

..... °

3 ..... scale makes sense because  
the type of angle is .....

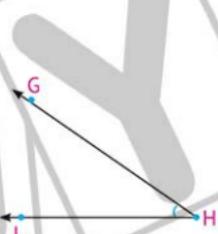


c 1 Inside scale measurement is ..... °

2 Outside scale measurement is

..... °

3 ..... scale makes sense because  
the type of angle is .....



d 1 Inside scale measurement is ..... °

2 Outside scale measurement is

..... °

3 ..... scale makes sense because  
the type of angle is .....



2 Use a **ruler** to measure the side lengths of each of the following triangles, then classify the triangles by their side lengths.

a



b

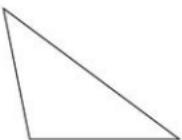


c

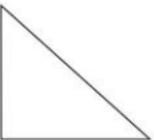


3 Use a **protractor** to measure the angles of each of the following triangles, then classify the triangles by the measure of their angles.

a



b



c



4 Complete the following (Use the geometric tools).

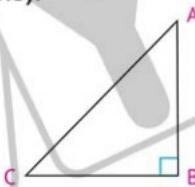
a By using your ruler:

1  $AB = \dots$  cm

2  $BC = \dots$  cm

3  $AC = \dots$  cm

4 The type of triangle by the length of its sides is .....



b By using your protractor:

1 The measure of  $\angle A = \dots$

2 The measure of  $\angle B = \dots$

3 The measure of  $\angle C = \dots$

4 The type of triangle by the measure of its angles is .....

### 5 Complete the following (Use the geometric tools).

a) By using your ruler:

1  $XY = \dots \text{ cm}$

2  $YZ = \dots \text{ cm}$

3  $ZX = \dots \text{ cm}$

4 The type of triangle by the length of its sides is .....

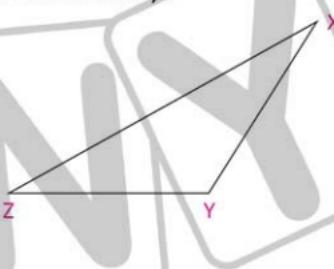
b) By using your protractor:

1 The measure of  $\angle X = \dots$

2 The measure of  $\angle Y = \dots$

3 The measure of  $\angle Z = \dots$

4 The type of triangle by the measure of its angles is .....



### 6 Complete the following (Use the geometric tools).

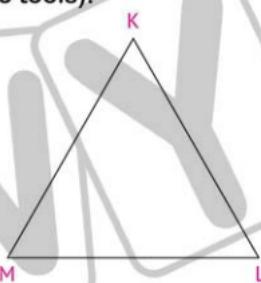
a) By using your ruler:

1  $KL = \dots \text{ cm}$

2  $LM = \dots \text{ cm}$

3  $MK = \dots \text{ cm}$

4 The type of triangle by the length of its sides is .....



b) By using your protractor:

1 The measure of  $\angle K = \dots$

2 The measure of  $\angle L = \dots$

3 The measure of  $\angle M = \dots$

4 The type of triangle by the measure of its angles is .....

## 1 Choose the correct answer:

a The type of a triangle whose angles measure  $30^\circ$ ,  $30^\circ$ ,  $120^\circ$  is ..... triangle. (acute or right or obtuse or equilateral)

b The type of a triangle whose side lengths are 9 cm, 9 cm, 6 cm is ..... triangle. (equilateral or isosceles or scalene or acute)

c Four-fifths = ..... . ( $\frac{5}{4}$  or  $\frac{4}{5}$  or  $\frac{5}{9}$  or  $\frac{9}{4}$ )

d The angle whose measure is  $108^\circ$  is ..... angle. (acute or right or obtuse or equilateral)

## 2 Complete the following:

a The type of triangle whose angles measure  $60^\circ$ ,  $60^\circ$ , ..... cm is equilateral triangle.

b If the inside scale measurement is  $70^\circ$ , then the outside scale measurement is .....  $^\circ$ .

c  $3.15 = \dots \dots \dots$

d  $X = \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \dots$

## 3 Complete the following:

a By using your ruler.

- 1  $XY = \dots \dots \dots$  cm
- 2  $ZX = \dots \dots \dots$  cm
- 3 The type of the triangle by the length of its sides is .....

b By using your protractor.

- 1 The measure of  $\angle X = \dots \dots \dots$
- 2 The measure of  $\angle Y = \dots \dots \dots$
- 3 The measure of  $\angle Z = \dots \dots \dots$
- 4 The type of the triangle by the measure of its angles is .....

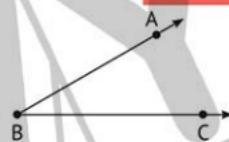
# Assessment on Concept 2



First: Choose the correct answer:

1 The opposite angle is called the ..... angle.

(BAC or ACB or CBA or A)



2 The opposite angle is a/an ..... angle.

(acute or obtuse or right or straight)



3 An angle whose measurement is  $90^\circ$  is called a/an ..... angle.

(acute or right or straight or obtuse)

4 The ..... angle is greater than  $90^\circ$  and less than  $180^\circ$ .

(acute or obtuse or right or straight)

5 A ..... is a tool for measuring angles.

(ruler or clock or protractor or degree)

6 The measurement of the opposite

angle is about ..... .

(20° or 80° or 90° or 170°)

7 The vertex of an angle that is called  $\angle CAB$  is ..... .

(D or A or B or C)



Second: Complete the following:

1 The rays of the opposite angle are ..... and ..... .

2 The type of the angle whose measurement is  $180^\circ$  is a/an ..... angle.

3 ..... is the unit of angle measurement.

4 ..... is the tool used to measure the angle.

5 An angle whose measurement is greater than  $90^\circ$  and less than  $180^\circ$  is a/an ..... angle.



## Third: Complete the following:

1 Use the protractor to measure the following angle, then complete:

a The rays of an angle are ..... and .....

b Vertex: .....

c Angle names: ..... or ..... or .....

d Angle measurement is .....

e Angle type is .....

2 Draw an estimate without using a protractor:

a An angle of 130 degrees.

b An angle of 50 degrees.

3 Use the protractor to draw the following angles:

a An angle of  $125^\circ$ .An angle of  $75^\circ$ .

4 Use the following circle models to complete:

a 1 Fraction: .....

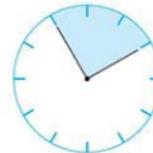
2 Angle measure: .....

3 Angle type: .....

b 1 Fraction: .....

2 Angle measure: .....

3 Angle type: .....



# Assessment

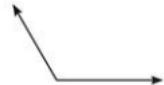
1

on



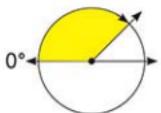
First: Complete the following:

- 1 ..... is the unit of angle measurement.
- 2 The measure of a right angle is ..... °.
- 3 If the measure of the angle of the shaded part of a circle is  $120^\circ$ , then the fraction represented by this angle is .....
- 4 The angle that is called  $\angle CBA$  whose vertex is the point ..... .
- 5 The measure of the opposite angle = ..... °.



Second: Choose the correct answer

- 1 An angle whose measurement is  $57^\circ$  is called a/an ..... angle.  
(acute or right or obtuse or straight)
- 2 At which of the following times is the clock hands' angle of about  $90^\circ$ ?  
(2:00 or 12:30 or 2:45 or 3:00)
- 3 If a circle is divided into 4 equal parts, then each part represents an angle of ..... °.  
(30 or 60 or 90 or 180)
- 4 The measure of the angle that represents the shaded part is ..... .  
( $30^\circ$  or  $60^\circ$  or  $90^\circ$  or  $180^\circ$ )
- 5 The corresponding figure represents an angle whose measurement is about ..... .  
( $315^\circ$  or  $135^\circ$  or  $225^\circ$  or  $45^\circ$ )



Third: Answer the following:

1 Draw an angle of approximately  $45^\circ$ .



2 Move clockwise, and write down the angle measurement in the marked places.



3 Draw angle CBA of  $120^\circ$ , then complete:

a The two rays that make up the angle are ..... and .....

b Angle type: .....

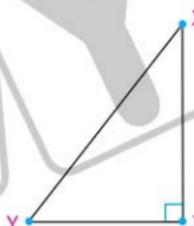
4 complete the following (By using your ruler)

a  $XY = \dots$  cm

b  $YZ = \dots$  cm

c  $ZY = \dots$  cm

d The type of the triangle by the length of its sides is .....



# Assessment

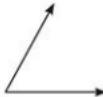
# 2

on



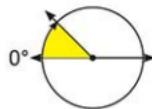
First: Complete the following:

- If a circle is divided into 360 parts, then each part of the circle represents an angle whose measurement is ..... °.
- The measure of a straight angle is ..... °.
- The tool that is used to measure an angle is called .....
- The measure of an angle representing a semicircle is ..... °.
- The measure of the angle shown is ..... °.



Second: Choose the correct answer:

- The angle whose measurement is ..... is called an obtuse angle.  
(50° or 80° or 92° or 185°)
- If the time is 8:00, then the hands of the clock will have an angle measuring about .....  
(120° or 40° or 80° or 160°)
- The angle whose measurement is ..... ° is an obtuse angle.  
(180° or 108° or 90° or 60°)
- A ..... is the unit of angle measurement.  
(degree or protractor or centimeter or gram)
- The corresponding figure represents an angle whose measurement is about .....  
(90° or 270° or 180° or 45°)



Third: Answer the following:

1 Draw an angle of approximately  $120^\circ$ .



2 Move counterclockwise, and write down the angle measurement in the marked places.



3 Draw angle XYZ of  $120^\circ$ , then complete:

a The two rays that make up the angle are ..... and .....

b Angle type: .....

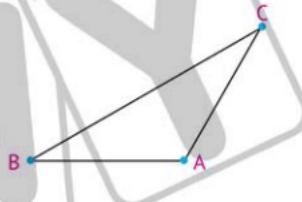
4 complete the following (By using your protractor)

a The measure of  $\angle A =$  .....

b The measure of  $\angle B =$  .....

c The measure of  $\angle C =$  .....

d The type of triangle by the measure of its angles is .....



# Final Revision

## on Theme 3

### Units 9,10&11

First: Choose the correct answer:

1 The fraction that represents the shaded parts is ..... 

a  $\frac{3}{4}$

b  $\frac{4}{3}$

c  $\frac{3}{7}$

d  $\frac{4}{7}$

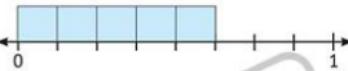
2 The model that represents three-fifths is ..... 

a  $\frac{3}{5}$

b  $\frac{1}{5}$

c  $\frac{3}{5}$

d  $\frac{1}{3}$

3 The fraction that is represented on the opposite number line is ..... 

a  $\frac{0}{3}$

b  $\frac{3}{5}$

c  $\frac{5}{8}$

d  $\frac{3}{8}$

4  $\frac{2}{3} + \frac{2}{3} + \frac{2}{3} =$  .....

a  $\frac{6}{9}$

b 2

c  $\frac{2}{9}$

d  $\frac{2}{3}$

5  $\frac{4}{5} =$  .....

a  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

b  $\frac{2}{3} + \frac{2}{2}$

c  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

d  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5}$

6  $1 =$  .....

a  $\frac{3}{5} + \frac{2}{5}$

b  $\frac{1}{2} + \frac{1}{3}$

c  $\frac{4}{4} + \frac{2}{2}$

d  $\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$

Final Revision

7 Three- ..... = 1

a halves

b thirds

c fourths

d sixths

8  $\frac{3}{5} + \frac{3}{5} =$  .....

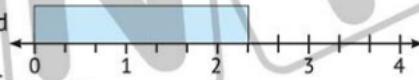
a  $\frac{6}{10}$

b  $\frac{3}{5}$

c  $\frac{3}{10}$

d  $\frac{6}{5}$

9 The fraction that is represented on the opposite number line is .....



a  $2 \frac{1}{3}$

b  $\frac{1}{3}$

c  $3 \frac{1}{2}$

d  $2 \frac{2}{3}$

10  $\frac{5}{8}$  is a/an .....

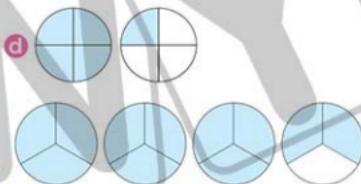
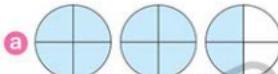
a proper fraction

b improper fraction

c decimal number

d whole number

11 The model that represents the mixed number  $2 \frac{1}{4}$  is .....



12 The fraction that represents the shaded parts in the opposite model is .....

a  $2 \frac{1}{3}$

b  $3 \frac{1}{3}$

c  $3 \frac{2}{3}$

d  $2 \frac{2}{3}$

13  $3 \frac{1}{4}$  is a/an .....

a proper fraction

b improper fraction

c mixed number

d whole number

14  $\frac{9}{8}$  is a/an .....

- a proper fraction
- c mixed number

15  $3\frac{1}{4} =$  .....

a  $\frac{12}{4}$

b  $\frac{8}{4}$

- b improper fraction

- d Whole number

16  $\frac{18}{3} =$  .....

a 2

b 3

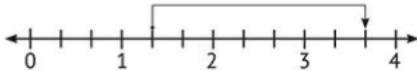
c  $\frac{13}{3}$

d  $\frac{13}{4}$

c 6

d 9

17 The addition process that is represented on the opposite number line is .....



a  $1\frac{1}{3} + 1\frac{1}{3}$

b  $1\frac{1}{3} + 2\frac{1}{3}$

c  $1\frac{1}{3} + 2$

d  $3\frac{2}{3} + 1\frac{1}{3}$

18 The subtraction process that is represented on the opposite number line is .....



a  $3 - 1\frac{2}{4}$

b  $3 - 2\frac{2}{4}$

c  $1\frac{2}{4} + 1\frac{2}{4}$

d  $3 + 1\frac{2}{4}$

19  $- 3\frac{1}{4} = 3\frac{1}{4}$

a  $6\frac{1}{4}$

b  $6\frac{2}{4}$

c 0

d 7

20  $5 - \dots = 2\frac{1}{5}$

a  $3\frac{4}{5}$

b  $2\frac{1}{5}$

c  $3\frac{1}{5}$

d  $2\frac{4}{5}$

Final Revision

21  $1\frac{2}{5} + \dots = 4$

a  $2\frac{3}{5}$

b  $4\frac{3}{5}$

c  $3\frac{3}{5}$

d  $1\frac{3}{5}$

22  $\frac{3}{8} \quad \boxed{\quad} \quad \frac{3}{5}$

a <

b =

c >

d  $\leq$

23  $\frac{7}{8} \quad \boxed{\quad} \quad \frac{5}{8}$

a >

b =

c <

d  $\leq$

24  $1 \quad \boxed{\quad} \quad \frac{3}{5}$

a >

b =

c <

d  $\leq$

25  $\frac{5}{9} > \dots$

a  $\frac{5}{5}$

b  $\frac{5}{8}$

c  $\frac{4}{9}$

d  $\frac{6}{9}$

26  $\frac{3}{5} = \dots$

a  $\frac{6}{10}$

b  $\frac{8}{10}$

c  $\frac{5}{7}$

d  $\frac{9}{10}$

27  $\frac{15}{30} = \dots$

a  $\frac{3}{10}$

b  $\frac{5}{6}$

c  $\frac{1}{2}$

d  $\frac{3}{4}$

28 In the fraction  $\frac{3}{9}$ , the numerator = ..... the denominator.

a third

b twice

c half

d three times

29 The fraction whose numerator is double its denominator in the following fractions is .....

a  $\frac{1}{2}$

b  $\frac{4}{2}$

c  $\frac{2}{4}$

d  $\frac{3}{2}$

30

$$\frac{3}{5} \times \dots = 1 \frac{1}{5}$$

a  $\frac{1}{5}$

b  $\frac{3}{5}$

c 2

d 5

31

$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \dots$$

a  $\frac{1}{4} \times 4$

b  $\frac{1}{4} \times \frac{1}{4}$

c  $\frac{1}{4} + 4$

d  $\frac{4}{4} \times 4$

32 The decimal that represents the



shaded part of the opposite model is .....

a 0.2

b 0.8

c 8.2

d 2.8

33 The decimal that represents

the shaded parts of the

opposite model is .....

a 2.6

b 6.2

c 2.4

d 4.2

34

$$5 \frac{3}{10} = \dots$$

a 5.03

b 50.3

c 5.3

d 50.03

(As a decimal)

35 The decimal that represents the shaded

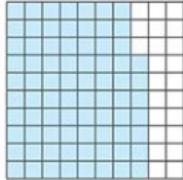
part of the opposite model is .....

a 7.7

b 0.77

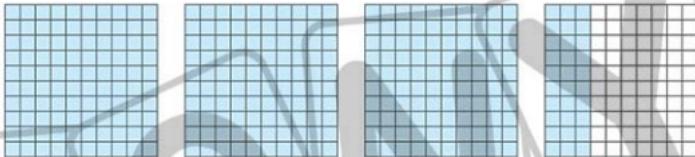
c 0.23

d 7.07



Final Revision

36 The decimal that represents the shaded parts of the following model is .....



a 30.3

b 3.03

c 3.30

d 30.03

37 Fifty-four and three-hundredths = .....

a 54.03

b 54.3

c 4.53

d 5.43

38  $81 \frac{5}{100} =$  .....

a 8.15

b 81.5

c 81.05

d 81.15

39 The place value of the digit 3 in 24.36 is .....

a Tens

b Ones

c Tenths

d Hundredths

40 The value of the digit 4 in 32.45 is .....

a 40

b 4

c 0.4

d 0.04

41 The digit that represents the Tenths in 25.39 is .....

a 9

b 3

c 5

d 2

42  $4 + 0.3 + 0.08 =$  .....

a 40.38

b 43.08

c 4.38

d 43.80

43 5 Tens, 3 Tenths, 7 Hundredths = .....

a 7.35

b 5.37

c 53.07

d 50.37

44  $4.05 =$  .....

a  $4 \frac{5}{10}$

b  $5 \frac{4}{10}$

c  $4 \frac{5}{100}$

d  $5 \frac{4}{100}$

45  $\frac{24}{10} = \dots$

a 0.24

b 2.4

c 2.04

d 20.4

46  $0.05 \square = 0.50$

47  $0.8 \square = 0.75$

48  $23.5 \square = 2.35$

49  $1.5 \square = \frac{15}{10}$

a >

b =

c <

d ≤

a >

b =

c <

d ≤

50  $\frac{45}{100} \square = 4 \frac{5}{100}$

a >

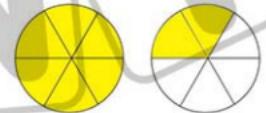
b =

c <

d ≤

**Second: Complete the following:**

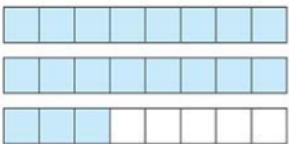
1 The fraction that represents the shaded parts in the opposite model is .....



2 The word form of the fraction that

represents the shaded parts of the

opposite model is .....



## Final Revision

3 Write an equation using unit fractions to form

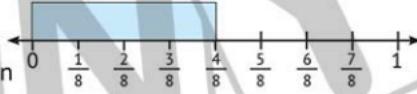
the fraction of the opposite model:



4 The equation that shows the

formation of the fraction shown

on the number line using unit fractions is .....



5  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$  .....

6  $\frac{3}{7} =$  ..... + ..... + .....

7  $\frac{9}{9} = 1$

8  $\frac{.....}{5} = 1$

9  $1 =$  ..... + ..... + ..... + .....

10 Three-thirds = ..... = .....

11 Seven- ..... = 1

13  $\frac{8}{9} = \frac{2}{9} + \frac{2}{9} +$  ..... + .....

14 The fraction shown on the opposite  
number line is .....

12  $\frac{5}{8} = \frac{3}{8} +$  .....



(As an improper fraction)

15  $3\frac{4}{5} =$  .....

16  $\frac{15}{4} =$  .....

(As a mixed number)

17  $\frac{5}{8} +$  ..... = 1

18  $5 -$  ..... =  $2\frac{1}{3}$

19.  $\frac{3}{5} = \frac{12}{\dots\dots}$

21.  $\dots\dots = \frac{3}{20} = \frac{3}{4}$

23.  $\frac{1}{3} = \dots\dots = \frac{5}{9} = \frac{5}{\dots\dots} = \frac{21}{\dots\dots}$

25. In the fraction  $\frac{2}{8}$ , the numerator = ..... the denominator.26. In the fraction  $\frac{9}{18}$ , the denominator = ..... the numerator.

27. If  $\frac{1}{2} = \frac{3}{6}$ ,  $\frac{5}{10} = \frac{1}{2}$ , then  $\frac{3}{10} = \boxed{\dots\dots} \frac{5}{6}$

28.  $\dots\dots \times \frac{2}{3} = \frac{12}{27} = \dots\dots$

29.  $\frac{54}{81} = \dots\dots$  (In the simplest form)

30.  $\frac{45}{60} = \frac{3}{4}$

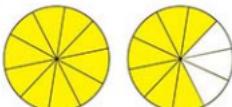
31.  $\frac{3}{4} = \frac{24}{32}$

32. ..... is the Additive Identity Element.

33. ..... is the Multiplicative Identity Element.

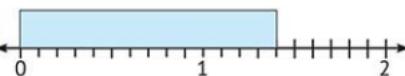
34.  $\frac{5}{6} \times \dots\dots = 10$

35. The decimal fraction representing the shaded parts in the opposite model is .....



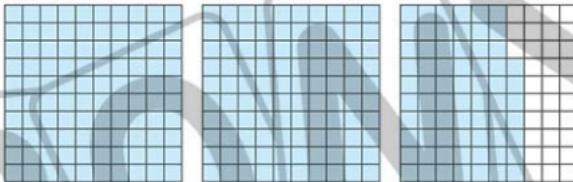
36. The decimal fraction representing

the shaded part on the opposite number line is .....



### Final Revision

37 The decimal fraction representing the shaded parts in the following model is .....



38 3.14: ..... (In word form)

39 12.08: ..... (In expanded form)

40 Thirty-three and three-hundredths: ..... (In standard form)

41  $20 \frac{3}{100} =$  ..... (As a decimal)

42 The **place value** of the digit 7 in 23.17 is .....

43 The **value** of the digit 0 in 28.03 is .....

44 5 Tens, 4 Hundredths ..... (As a decimal)

45  $5.03 =$  ..... (As a fraction)

46  $\frac{46}{10} =$  ..... (As a decimal)

47  $2 \frac{4}{10} + 3 \frac{4}{100} =$  .....

48  $\frac{3}{10} +$  .....  $= 0.33$

49  $(3 \times 10) + (2 \times 1) + (5 \times \frac{1}{10}) + (7 \times \frac{1}{100}) =$  ..... (As a decimal)

50  $80 + \frac{5}{10} + \frac{3}{100} =$  ..... (As a decimal)

**Third:** Find the result in the simplest form:

1  $\frac{3}{8} + \frac{7}{8} =$  .....

2  $2 \frac{1}{7} + 1 \frac{5}{7} =$  .....

3  $8 \frac{4}{5} - 2 \frac{1}{5} =$  .....

4  $6 \frac{1}{4} - \frac{5}{4} =$  .....

5  $9 - 3 \frac{1}{3} =$  .....

6  $5 \times \frac{3}{5} =$  .....

7  $8 \times \frac{1}{2} =$  .....

8  $\frac{3}{4} \times \frac{2}{2} =$  .....

Fourth: Compare using ( $<$ ,  $=$ , or  $>$ ):

1  $\frac{3}{8}$    $\frac{5}{8}$

3 0.02  0.2

5 0.50   $\frac{5}{10}$

7  $5 \frac{3}{10}$    $5 \frac{3}{8}$

9 0.30  0.3

2  $3 \frac{4}{5}$    $2 \frac{1}{4}$

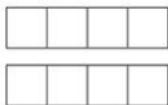
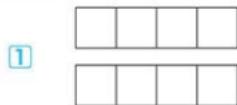
4 7.09  70.9

6  $\frac{4}{5}$    $\frac{4}{9}$

8 20.3  2.3

10 0.5   $3 \frac{1}{2}$

Fifth: Find the result using the models shown:

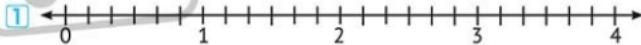


$1 \frac{3}{4}$  +  $1 \frac{1}{4}$  = .....

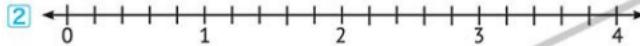


$3 \frac{1}{6}$  -  $2 \frac{3}{6}$  = .....

Sixth: Find the result using the following number lines:



$2 \frac{4}{6} + \frac{5}{6} =$  .....



$$3 \frac{2}{5} - 1 \frac{4}{5} =$$

## Seventh: Answer the following:

1 Sara is preparing orange juice for her family. She needs  $\frac{3}{4}$  spoon of sugar to make 1 cup of juice.

How many spoons does she need to make 5 cups of juice?

2 Hussam has 4 loaves of bread. He used  $\frac{3}{4}$  loaf of bread to make a sandwich. How much bread is left?

3 Alaa drank  $1 \frac{3}{8}$  liters of water, and Azza drank  $1 \frac{5}{8}$  liters of water.

What is the total number of liters Alaa and Azza drank?

4 Nada has  $2 \frac{3}{4}$  cakes. She gave  $1 \frac{2}{4}$  from the cakes to her sister.

How much cake is left?

5 Amir ate  $\frac{3}{9}$  of a candy bar, and Sara ate  $\frac{5}{8}$  of a candy bar of the same type and size. Who ate more than  $\frac{1}{2}$  of the bar? (Show your steps)

6 Marwa drinks  $\frac{1}{5}$  box of milk every day.

How much milk does Marwa drink in 15 days?

7 Ashraf walks to his school for a distance of  $\frac{5}{10}$  kilometer, then he stops and continues walking for  $\frac{22}{100}$  kilometer until he reaches his school. What is the total distance covered by Ashraf?

8 Arrange the following in an ascending order:

a  $\frac{2}{5}, 1, \frac{4}{5}, \frac{3}{5}$

The order: ..... < ..... < ..... <

b  $\frac{1}{8}, \frac{1}{4}, \frac{1}{9}, \frac{1}{5}$

The order: ..... < ..... < ..... <

9 Arrange the following in a descending order:

a  $\frac{2}{6}, \frac{2}{2}, \frac{2}{5}, \frac{2}{7}$

The order: ..... > ..... > ..... >

b  $\frac{3}{8}, 1, \frac{1}{2}, \frac{5}{8}$

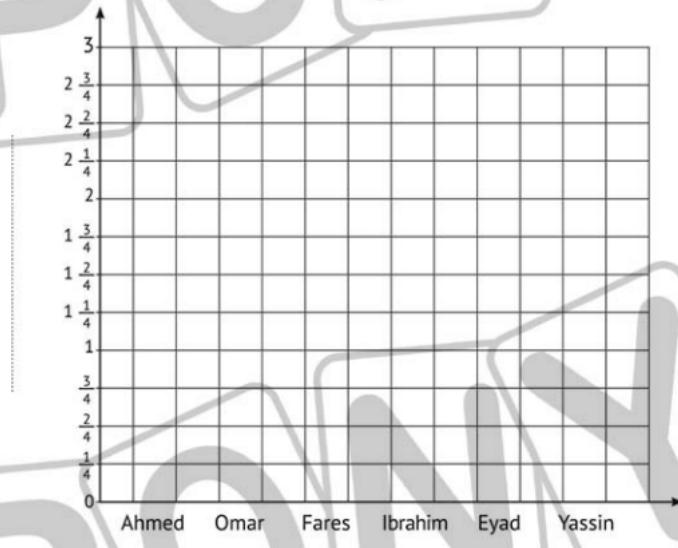
The order: ..... > ..... > ..... >

## Eighth: Answer the following:

1 6 students roll a ball of mass 10 kg as far as possible and the results are as shown in the following table:

Student	Ahmed	Omar	Fares	Ibrahim	Eyad	Yassin
Distance	$\frac{1}{4}$ m	$\frac{3}{4}$ m	$1\frac{3}{4}$ m	$2\frac{1}{2}$ m	$\frac{3}{4}$ m	$\frac{1}{2}$ m

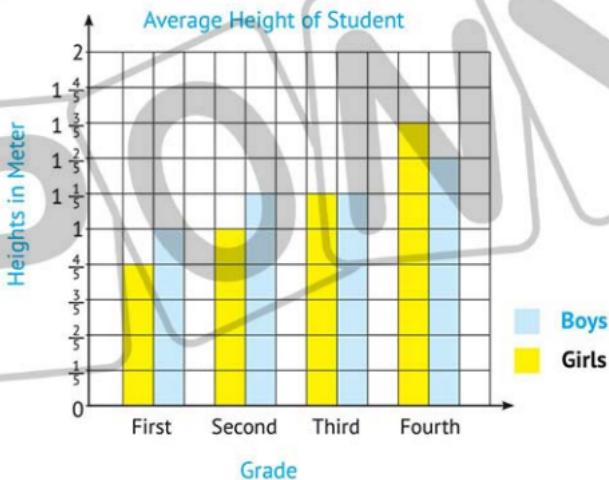
a Represent this data in the following bar graph.



b Answer the following:

- 1 Who rolled the ball for the **longest** distance? .....
- 2 Who rolled the ball for the **shortest** distance? .....
- 3 What is the **total** distance Omar and Fares rolled the ball for together? .....
- 4 How long **more** is the distance of the ball rolled by Ibrahim than Yassin? .....

2 Use the following graph to complete the data in the table, then answer the questions below:



Grade	First	Second	Third	Fourth
Average Height of Girls				
Average Height of Boys				

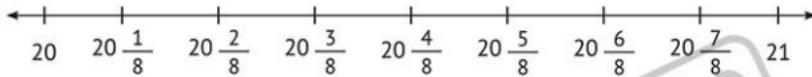
• Answer the following:

- What is the average height of **boys** in the **second** grade? .....
- In which class is the average height of **girls** equal to the average height of **boys**? .....
- In which class is the average height of **girls** greater than the average height of **boys**? .....
- How much more is the average height of **boys** greater than the average height of **girls** in first grade? .....

3 Ramy works in palm cultivation and the following data shows the heights of the palms planted in the same time:

$20 \frac{1}{8} \text{ m}$	$20 \frac{2}{8} \text{ m}$	$20 \frac{1}{8} \text{ m}$	$20 \frac{3}{8} \text{ m}$	$20 \frac{1}{8} \text{ m}$
$20 \frac{3}{8} \text{ m}$	$20 \frac{5}{8} \text{ m}$	$20 \frac{7}{8} \text{ m}$	$20 \frac{5}{8} \text{ m}$	$20 \frac{1}{8} \text{ m}$

a Draw a line plot graph that represents the previous data.



b Answer the following:

1 How many palm trees are represented in the table?

x =

2 What is the most frequent height of the palm trees?

3 What heights are on the number line that are not represented?

# Final Revision

## on Theme 4

### Units 12&13

First: Choose the correct answer:

1 A ..... is a part of a line and has 2 end points.

a line segment    b ray    c straight line    d point

2 A ..... is a part of a line that has a starting point and no end point, it continues forever in only one direction.

a line segment    b ray    c straight line    d point

3 A ..... is a line that continues forever in both directions.

a line segment    b ray    c straight line    d point

4 The opposite figure is called ..... .

a  $\overrightarrow{BC}$     b  $\overrightarrow{CB}$     c  $\overline{BC}$     d  $\overleftrightarrow{CB}$

5 The opposite figure is called ..... .

a  $\overrightarrow{AB}$     b  $\overrightarrow{BA}$     c  $\overline{AB}$     d  $\overleftrightarrow{AB}$

6 The opposite figure is called ..... .

a  $\overrightarrow{DC}$     b  $\overrightarrow{CD}$     c  $\overline{CD}$     d  $\overleftrightarrow{CD}$

7 The opposite figure is a/an ..... angle.

a right    b acute    c obtuse    d straight

8 The opposite figure represents an angle that is ..... a right angle.

a greater than    b less than    c equal to

9 A triangle whose side lengths are ..... cm, 4 cm, and 7 cm, is a scalene triangle.

a 4    b 7    c 8

## Final Revision

10 A triangle whose side lengths are 8 cm, 5 cm, and ..... cm is an isosceles triangle.  
**a** 6      **b** 5      **c** 3      **d** 4

11 A triangle whose side lengths are 4 cm, 4 cm, and ..... cm is an equilateral triangle.  
**a** 3      **b** 5      **c** 7      **d** 4

12 Any triangle has at least ..... acute angle(s).  
**a** 0      **b** 1      **c** 2      **d** 3

13 All angles of an acute triangle are ..... angles.  
**a** acute      **b** right      **c** obtuse      **d** straight

14 A triangle that contains one right angle and two acute angles is called a/an ..... triangle.  
**a** acute      **b** right      **c** equilateral      **d** obtuse

15 A triangle that has one obtuse angle and two acute angles is called a/an ..... triangle.  
**a** acute      **b** right      **c** equilateral      **d** obtuse

16 A ..... is a quadrilateral in which all sides are of equal length.  
**a** parallelogram      **b** rhombus      **c** rectangle      **d** trapezium

17 A ..... is a quadrilateral in which all angles are right.  
**a** parallelogram      **b** rhombus      **c** rectangle      **d** trapezium

18 A ..... is a quadrilateral with one pair of acute angles and one pair of obtuse angles.  
**a** square      **b** rectangle      **c** trapezium      **d** parallelogram

19 A ..... is a quadrilateral with two pairs of parallel sides, and all of its sides are equal.  
**a** rectangle      **b** rhombus      **c** trapezium      **d** parallelogram

20 A ..... is a quadrilateral with two pairs of parallel sides, and all its angles are right.

a rectangle      b rhombus      c trapezium      d parallelogram

21 A ..... is a quadrilateral with two pairs of parallel sides, all its angles are right, and all its sides are equal in length.

a rhombus      b trapezium      c parallelogram      d square

22 An angle whose measure is  $35^\circ$  is called a/an ..... angle.

a acute      b right      c obtuse      d straight

23 An angle whose measure is  $180^\circ$  is called a/an ..... angle.

a straight      b obtuse      c right      d acute

24 An angle whose measure is  $108^\circ$  is called a/an ..... angle.

a straight      b obtuse      c right      d acute

25 An angle whose measure is  $102^\circ$  is called a/an ..... angle.

a straight      b obtuse      c right      d acute

26 An angle whose measure is ..... is called an acute angle.

a  $50^\circ$       b  $180^\circ$       c  $92^\circ$       d  $185^\circ$

27 An angle whose measure is ..... is called an obtuse angle.

a  $102^\circ$       b  $180^\circ$       c  $90^\circ$       d  $45^\circ$

28 An angle whose measure is ..... is called a straight angle.

a  $90^\circ$       b  $300^\circ$       c  $180^\circ$       d  $45^\circ$

29 An angle whose measure is ..... is called a right angle.

a  $360^\circ$       b  $180^\circ$       c  $45^\circ$       d  $90^\circ$

30 A right angle represents ..... of a circle.

a quarter      b half      c three-quarters      d three-eighths

## Final Revision

31 The measure of a right angle is greater than the measure of

a/an ..... angle.

**a** acute      **b** straight      **c** obtuse      **d** right

32 The corresponding figure represents

an angle whose measure is about .....

**a**  $315^\circ$       **b**  $225^\circ$       **c**  $135^\circ$       **d**  $45^\circ$



33 The measure of the angle representing

the shaded part is .....

**a**  $50^\circ$       **b**  $150^\circ$       **c**  $120^\circ$       **d**  $100^\circ$



34 The measure of the opposite angle

is about .....

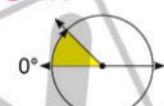
**a**  $120^\circ$       **b**  $90^\circ$       **c**  $30^\circ$       **d**  $180^\circ$



35 The corresponding figure represents

an angle whose measure is about .....

**a**  $315^\circ$       **b**  $225^\circ$       **c**  $135^\circ$       **d**  $45^\circ$



### Second: Complete the following:

1 A line segment has ..... end point(s).



2 A ray is a part of a line that has ..... starting point(s) and ..... end point(s).



3 The opposite figure is called ..... or .....

4 The opposite figure is called ..... , its starting point

is ..... and it passes through point .....



5 The opposite figure is called ..... or .....



6 The number of lines of symmetry of a square is .....

7 The number of lines of symmetry that can be drawn in the opposite figure is .....

8 The type of triangle whose side lengths are 3 cm, 4 cm, and 5 cm according to the lengths of its sides is a/an ..... triangle.

9 The type of triangle whose side lengths are 5 cm, 7 cm, and 5 cm according to the lengths of its sides is a/an ..... triangle.

10 The type of triangle whose side lengths are equal according to the lengths of its sides is a/an ..... triangle.

11 The type of triangle whose angles are acute according to the type of angles is a/an ..... triangle.

12 The type of triangle that contains a right angle and two acute angles according to the type of its angles is a/an ..... triangle.

13 The type of triangle that contains one obtuse angle and two acute angles according to the type of its angles is a/an ..... triangle.

14 Any triangle has at least ..... acute angle(s).

15 The type of equilateral triangle according to the type of its angles is a/an ..... triangle.

16 Quadrilaterals that have two pairs of parallel sides are:

a ..... b .....  
c ..... d .....

17 Quadrilaterals that have four sides of equal lengths are:

a ..... b .....

18 Quadrilaterals that have four right angles are:

a ..... b .....

19 A parallelogram contains:

a ..... of parallel sides. b ..... acute angles.  
c ..... obtuse angles.

20 A rectangle contains:  
 a ..... of parallel sides. b ..... right angles.

21 A rhombus contains:  
 a ..... of parallel sides. b ..... acute angles.  
 c ..... obtuse angles.

22 A rectangle contains:  
 a ..... of parallel sides. b ..... right angles.

23 A quadrilateral that has 2 pairs of adjacent side that are congruent side is a .....

24 A quadrilateral that has two pairs of parallel sides and all of its angles are right is a .....

25 A quadrilateral with two pairs of parallel sides and all of its sides are equal and all its angles are right is a .....

26 A quadrilateral that has one pair of acute angles, one pair of obtuse angles, and two pairs of parallel sides and all its sides are equal is a .....

27 A quadrilateral with exactly two pairs of parallel sides is a .....

28 ..... is the unit of angle measurement.

29 If the circle is divided into 360 parts, then each part of the circle represents an angle whose measure is ..... °.

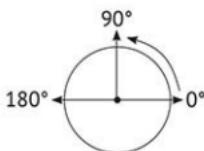
30 The measure of a right angle is ..... °.

31 The measure of a straight angle is ..... °.

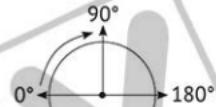
32 The measure of an acute angle is greater than ..... °, and less than ..... °.

33 The measure of an obtuse angle is greater than ..... °, and less than ..... °.

34 In the opposite figure,  
 the direction of motion  
 from  $0^\circ$  to  $180^\circ$  is .....



35 In the opposite figure,  
the direction of motion  
from  $0^\circ$  to  $180^\circ$  is .....



Third: Answer the following:

1 Draw:

a GH perpendicular to EF



b AB perpendicular to CD



c A triangle with an obtuse angle.

d A triangle with a right angle.

e A triangle with three acute angles.

f An equilateral triangle.

g A scalene triangle.

h An isosceles triangle.

i An angle of  $45^\circ$ .

j An angle of  $90^\circ$ .

k An angle of  $140^\circ$ .

2 Use the following figure to answer the questions:

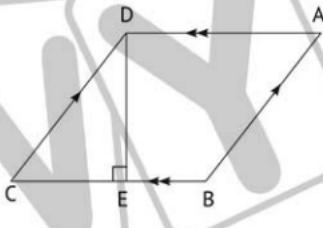
a The two line segments AD and ..... are parallel.

b The two line segments AB and ..... are parallel.

c The two line segments DE and AD are .....

d The two line segments DC and AB are .....

e The two line segments CB and DE are intersecting at point .....



3 Use the following figure to answer the questions:

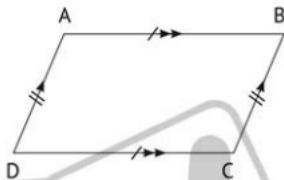
a The corresponding figure is called .....

b  $\overline{AB}$  and ..... are parallel

c  $\overline{AD}$  and ..... are parallel

d The two angles (B) and (D) are ..... angles.

e The two angles (C) and (A) are ..... angles.



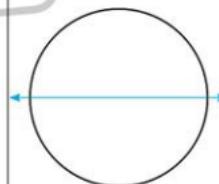
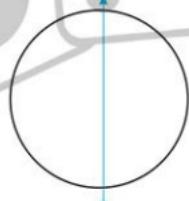
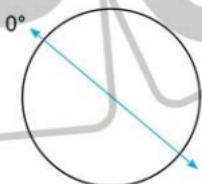
4 Move from  $0^\circ$  in the given direction and draw a right angle, then write

$90^\circ$  and  $180^\circ$  on each circle:

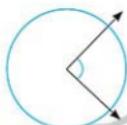
a Clockwise

b Counterclockwise

c Clockwise



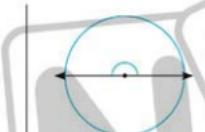
## 5 Write the angle type:



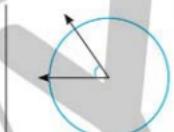
a



b



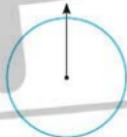
c



d

## 6 Draw:

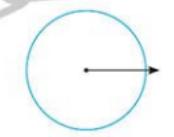
a A straight angle



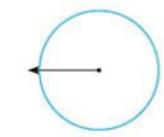
b A right angle



c An obtuse angle



d An acute angle



## 7 Write what the shaded parts represent:

a Angle measure = (about) ..... °



b Angle measure = (about) ..... °



## 8 Use the protractor to measure the following angle, then complete:

a 1 Ray (1): ..... 2 Ray (2): .....

b Angle vertex: .....

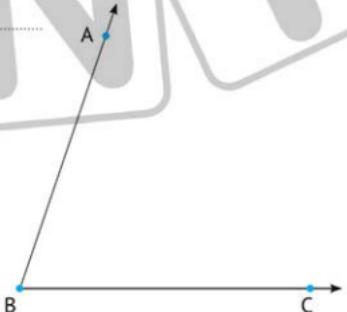
c Angle names: .....

1 ..... 2 .....

3 .....

d Angle type: .....

e Angle measure: .....



# Model Exams

Cairo Gavernorate - Al-Shourq Educational Zone

1

First: Choose the correct answer:

1 Any triangle has ..... angles.

(3 or 4 or 5 or 6)

2 The mixed number  $2\frac{1}{8}$  as an improper fraction is .....

( $\frac{10}{8}$  or  $\frac{17}{8}$  or  $\frac{15}{8}$  or  $\frac{11}{8}$ )

3  $\frac{2}{3} \times 1 =$  .....

( $\frac{1}{2}$  or  $\frac{3}{2}$  or  $\frac{2}{3}$  or  $\frac{3}{2}$ )

4 To find the measure of an angle, we use a .....

(compass or protractor or ruler or triangle)

5  $\frac{2}{5} + \frac{3}{5} =$  .....

(1 or 2 or 3 or 4)

6 The standard form of "five and three-tenth" is .....

(3.5 or 3.05 or 5.3 or 5.03)

7 A whole one = ..... Tenths

(5 or 10 or 15 or 20)

Second: Complete the following:

1 The quadrilateral whose sides are equal and whose angles are right is .....

2 If  $L + \frac{3}{8} = \frac{5}{8}$ , then  $L =$  .....

3 The multiplicative identity element is .....

4  $2 - \frac{1}{4} =$  .....

5 The ray has a starting point, but it doesn't have an ..... point.

6  $\frac{15}{100} + \frac{46}{100} =$  .....

7 The two perpendicular lines form ..... right angles.

8 The expanded form of 2.19 is .....

## Third: Choose the correct answer:

1 The fraction  $\frac{2}{3}$  is called a/an ..... .

(unit fraction or proper fraction or improper fraction or decimal fraction)

2  $\frac{4}{7}$

$\frac{4}{9}$

(> or < or = or  $\leq$ )

3 The place value of the digit 5 in 3.25 is .....

(Ones or Tens or Tenths or Hundredths)

4 The measure of a right angle is ..... degrees. (70 or 80 or 90 or 100)

5 The number of intersection points at the perpendicular lines is .....

(0 or 1 or 2 or 3)

6 The number of unit fractions in five-eighth is .....

(5 or 6 or 7 or 8)

7  $\frac{\text{.....}}{10} = 0.5$

(20 or 15 or 10 or 5)

## Fourth: Answer the following:

## In the opposite circle:

1 The fraction of the shaded part is .....



2 The angle of the shaded part is .....

## In the opposite table:

1 The number of students who prefer football is .....

Sport	Number of Students
Foothall	48

2 The number of students who prefer swimming is .....

Handball	24
Swimming	32

First: Choose the correct answer:

1 Which of the opposite is unit fraction?

2  $\frac{1}{9} + \frac{1}{9} = \dots$

3 The fraction  $\frac{18}{36}$  in the simplest form =  $\dots$ 

4  $\frac{1}{10} + \frac{1}{100} = \dots$

5 Which of the following are two parallel straight lines?

$$\left( \frac{1}{7} \text{ or } \frac{2}{7} \text{ or } \frac{5}{7} \text{ or } \frac{7}{7} \right)$$

$$\left( \frac{1}{9} \text{ or } \frac{1}{10} \text{ or } \frac{2}{9} \text{ or } \frac{1}{2} \right)$$

$$\left( \frac{1}{2} \text{ or } \frac{6}{9} \text{ or } \frac{9}{9} \text{ or } \frac{3}{4} \right)$$

$$\left( \frac{11}{10} \text{ or } \frac{11}{100} \text{ or } \frac{2}{10} \text{ or } \frac{2}{100} \right)$$

6 The angle of measure  $150^\circ$  is called a/an ..... angle.

(acute or right or obtuse or straight)

7 To represent data on a number line, we use .....

(bar graph or pictograph or double bar graph or line plot)

Second: Complete the following:

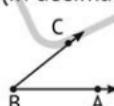
1  $6\frac{4}{5} + 3\frac{4}{5} = \dots$

2  $4 + \frac{3}{4} = \dots$

3  $\frac{5}{6} \times \frac{6}{6} = \dots$

4  $\frac{7}{100} = \dots$  (In decimal form)

5 The name of the opposite angle is .....



6  $3\frac{1}{2} = \dots$  (As an improper fraction).

7 The following table represents the favorite colors of 30 people, then

the most favorite color

is .....

Color	Red	Yellow	Black	Green
No. of People	12	10	2	6

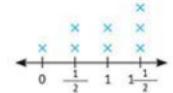
## Third: Choose the correct answer:

1 The equivalent to  $\frac{2}{9}$  is ..... $(\frac{2}{18} \text{ or } \frac{4}{18} \text{ or } \frac{6}{9} \text{ or } \frac{4}{27})$ 2  $\frac{4}{5}$  $\frac{2}{5}$ 3 The measure of an angle which represents  $\frac{1}{3}$  of the circle = ..... ° $(30 \text{ or } 60 \text{ or } 90 \text{ or } 120)$ 4  $3 + 0.9 + 0.02 =$  ..... $(3.92 \text{ or } 9.23 \text{ or } 293 \text{ or } 392)$ 

5 To represent two sets of data in the same graph, the suitable representation is .....

(bar graph or pictograph or double bar graph or line plot)

6 In the opposite line plot graph, the most frequent value is .....

7 If  $\frac{a}{6} = \frac{2}{3}$ , then  $a =$  ..... $(0 \text{ or } \frac{1}{2} \text{ or } 1 \text{ or } 1\frac{1}{2})$ 

## Fourth: Answer the following:

1 Amgad ate  $\frac{2}{5}$  of a pizza. Find the fraction of the remaining part of pizza .....2 Yasser walked  $\frac{2}{10}$  km, and he stopped for 10 minutes, then he walked another  $\frac{5}{10}$  km. What is the total distance did he walk? .....

3 The following table represents the distance walked by 4 people in km. Represent it using the bar graph.

Name	Ayman	Salma	Yousef	Ahmed
Distance	4	3	2	3



## First: Choose the correct answer:

1  $\frac{3}{9} > \dots$

3 (  $\frac{3}{4}$  or  $\frac{5}{9}$  or  $\frac{1}{9}$  or  $\frac{1}{9}$  )

2 All isosceles triangles have ..... equal sides.

(0 or 1 or 2 or 3)

3  $4 + \frac{7}{12} + 2 + \frac{1}{12} = \dots$

(  $\frac{6}{12}$  or  $\frac{6}{24}$  or  $\frac{2}{12}$  or  $\frac{7}{12}$  )

4 The related fraction to the angle of measure  $180^\circ$  is ..... .

(  $\frac{1}{6}$  or  $\frac{1}{4}$  or  $\frac{1}{3}$  or  $\frac{1}{2}$  )

5  $\frac{45}{100} + \frac{2}{10} = \dots$

(0.62 or 0.47 or 0.65 or 6.5)

6 To represent the number of hours walked by Ail and Omar in one week,

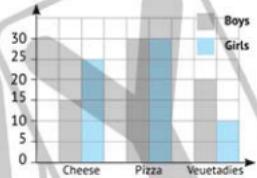
you can use ..... .

(line plot graph or pictograph or double bar graph or bar graph)

7 The opposite graph represents the favorite food for a group of boys and girls.

What is the difference between the number of boys and girls who like cheese?

(15 or 25 or 10 or 30)



## Second: Complete the following:

1 The name of  $\rightarrow$  is ..... .

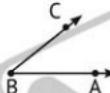
2  $7.68 = 7 + \dots + 0.08$

3  $\frac{4}{7} = \frac{\dots}{14}$

4 A ..... is a rectangle with all sides are equal in length.

5  $3.9 = \dots$  Hundredths6  $2\frac{3}{5} = \dots$  (As an improper fraction).

7 The opposite figure shows a/an ..... angle.



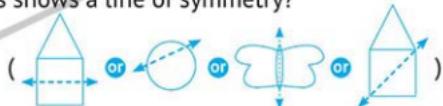
8 The football coach scored the following numbers of goals in the last ten matches 6, 1, 4, 6, 2, 4, 6, 6, 2, 2. The number with the highest frequency is .....

Third: Choose the correct answer:

1  $3\frac{4}{9} - 2\frac{3}{9} = \dots$

(5  $\frac{8}{9}$  or 5  $\frac{2}{9}$  or 1  $\frac{1}{9}$  or 1  $\frac{1}{18}$ )

2 Which of the following figures shows a line of symmetry?



3 3 tenths is equivalent to ..... (0.30 or  $\frac{3}{100}$  or 0.03 or 6 or  $\frac{33}{100}$ )

4 A / An ..... angle measured between  $0^\circ$  and  $90^\circ$

(acute or obtuse or right or straight)

5  $\frac{5}{7} = \frac{1}{7} + \frac{2}{7} + \dots$

( $\frac{1}{7}$  or  $\frac{2}{7}$  or  $\frac{3}{7}$  or  $\frac{4}{7}$ )

6  $5 \times \frac{1}{6} = \dots$

( $\frac{5}{6}$  or  $\frac{1}{6}$  or  $\frac{15}{6}$  or  $1 + \frac{5}{6}$ )

7 Which type of graph is suitable for this data?

(line plot graph or double bar graph or bar graph)

Name	Sara	Ali	Ola
Age	12	15	17

Fourth: Answer the following:

1 Arrange each of the following numbers from the least to the greatest:

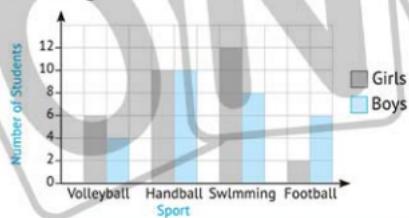
$$\frac{6}{6}, \frac{5}{10}, \frac{1}{8}, \frac{8}{9}$$

The order: .....

Final Revision

2 Ahmed drank  $1\frac{3}{7}$  liters of water, Salma drank  $1\frac{4}{7}$  liters. How many liters of water did Ahmed and Salma drink together?

3 Complete the following table:



Sport Students	Volleyball	Handball	Swimming	Football
Girls	.....	.....	.....	.....
Boys	.....	.....	.....	.....

## Alexandria Gavernorate - East Educational Zone

4

## First: Choose the correct answer:

1 Fifty-three hundredth in digits is .....  $(5.3 \text{ or } 0.53 \text{ or } 50.03 \text{ or } \frac{3}{50})$

2 This opposite line is read as .....   $(AB \text{ or } \overleftarrow{AB} \text{ or } \overrightarrow{AB} \text{ or } \overleftrightarrow{AB})$

3  $\frac{3}{9}$  is a/an ..... fraction.  $(\text{proper or improper or mixed or whole})$

4 A whole one = ..... Hundredths  $(100 \text{ or } \frac{1}{100} \text{ or } 10 \text{ or } \frac{100}{100})$

5 The triangle has ..... sides.  $(5 \text{ or } 4 \text{ or } 3 \text{ or } 2)$

6 Which of the following shows the paralleled lines ..... 

7  $0.17 =$  ..... as a fraction.  $(\frac{7}{10} \text{ or } \frac{17}{100} \text{ or } 1.7 \text{ or } 17)$

## Second: Complete the following:

1  $\frac{1}{6} + \frac{1}{6} + \frac{2}{6} =$  ..... 

2 The opposite shape is ..... 

3  $\frac{3}{7} =$  ..... + ..... + ..... as an unit fraction. 

4 The type of angle of  $120^\circ$  is ..... .

5  $5\frac{2}{3} =$  ..... as an improper fraction.

6 A parallelogram with four right angles is ..... .

7  $4.63 = 4 +$  ..... +  $0.03$

8 A/An ..... triangle has 3 equals side.

## Final Revision

### Third: Choose the correct answer:

1 Which fraction is equivalent to  $\frac{2}{3}$ ?

( $\frac{8}{9}$  or  $\frac{2}{9}$  or  $\frac{6}{9}$  or  $\frac{16}{18}$ )

2 The opposite triangle is a/an ..... triangle.



(obtuse or right or acute or parallel)

3  $50 + 3 + 0.3 + 0.02 =$  .....

(35.03 or 53.32 or 53.2 or 53)

4 The opposite figure shows a/an ..... angle.

(obtuse or right or acute or parallel)

5  $\frac{1}{100}$   $\frac{7}{10}$

(= or < or > or  $\leq$ )

6 The following figure shows a .....

(pictograph or line plot graph or bar graph or double bar graph)

7 Which month did Hany and Enas save the same amount?

(Jan or March or Feb or April)



### Fourth: Answer the following:

1  $2\frac{1}{4} + 1\frac{2}{4} =$  .....

2 The two lines are .....



3  $3\frac{4}{5} + 1\frac{2}{5} =$  .....

4 Hossam walked  $\frac{3}{7}$  kilometer, then he walked another  $\frac{2}{7}$  kilometer.

How long did Hossam walk altogether?

## Alexandria Governorate - Downtown Educational Zone

First: Choose the correct answer:

1  $\frac{5}{10}$

2  $\frac{7}{10}$

3

4

is an acute angle.

=

These 2 lines are called

(  $>$  or  $=$  or  $<$  or otherwise)(  $65^\circ$  or  $90^\circ$  or  $120^\circ$  or  $180^\circ$  )

( 0.8 or 0.08 or 8.08 or 0.88 )

lines.

( intersecting or perpendicular or parallel or polygons )

5

6  $3\frac{2}{5} =$

( As an improper fraction ).

(  $\frac{17}{5}$  or  $\frac{30}{2}$  or  $\frac{35}{2}$  or  $\frac{30}{5}$  )

7 Which type of graph is suitable for this data?

Name	Farah	Nelly	Emy
Age	10	20	15

( double bar graph or line plot graph or bar graph or pictograph )

8

9  $\frac{6}{10} + \frac{3}{100} =$

(  $\frac{63}{10}$  or  $\frac{36}{100}$  or  $\frac{3}{100}$  or  $\frac{63}{100}$  )

Second: Complete the following:

1 Two perpendicular lines form 4 right angles.

2 Sixth-sevenths =  $\frac{6}{7}$  (In fractional form).

3 The quadrilateral that has only 1 pair of parallel lines is called trapezoid.

4 There are  $\frac{5}{9}$  unit fractions in  $\frac{5}{9}$ .

5 The equilateral triangle has 3 equal sides.

6  $4.5 =$   $\frac{45}{10} =$   $4 + \frac{5}{10}$

(As a decimal)

7  $\frac{54}{10} =$   $5\frac{4}{10} =$   $5 + \frac{4}{10} =$   $5 + 0.4 =$  5.4

8 The angle which represents the shaded part =  $\frac{1}{4}$  of a circle.

## Third: Choose the correct answer:

1  $\frac{16}{24} = \dots$

( $\frac{2}{3}$  or  $\frac{1}{3}$  or  $\frac{1}{2}$  or  $\frac{3}{4}$ )

2 The rhombus has ..... equal sides.

(0 or 4 or 2 or 3)

3 The decimal which represents the following shape is .....

(0.03 or 0.7 or 0.3 or 0.07)



4 The ..... triangle has no equal sides.

(scalene or isosceles or equilateral or obtuse)

5  $0.82 \dots 0.9$

(> or = or < or otherwise)

6  $\frac{5}{9} + \frac{4}{9} = \dots$

( $\frac{1}{9}$  or  $\frac{9}{18}$  or  $\frac{1}{18}$  or  $\frac{20}{81}$ )

7 The name of ..... is a .....

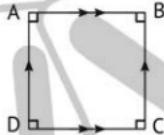
(line segment or ray or line or angle)

## Fourth: Answer the following:

1 Hossam bought a book for  $4\frac{1}{6}$  pounds. If he had  $8\frac{3}{6}$  pound, how much does he have now?

2 On the opposite figure:

•  $\overline{AD} \parallel \dots$  •  $\overline{AB} \perp \dots$



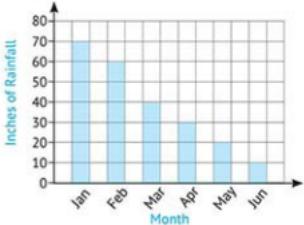
3 Write the number 2.46

• In word form

• In expanded form

4 The following bar graph represents the average rainfall from January through June.

a Which month had the most rainfall?



b Which month had the least rainfall?

## Giza Governorate - El Ayyat Educational Zone

6

First: Choose the correct answer:

1  $3 \frac{2}{5} = \dots$  (As an improper fraction)  $(\frac{17}{5} \text{ or } \frac{30}{5} \text{ or } \frac{35}{2} \text{ or } \frac{32}{5})$

2  $5 - 2 \frac{1}{4} = \dots$   $(7 \frac{1}{4} \text{ or } 3 \frac{1}{4} \text{ or } 3 \frac{3}{4} \text{ or } 2 \frac{3}{4})$

3 The value of the digit 3 in 20.30 is .....  $(0.03 \text{ or } 0.3 \text{ or } 3 \text{ or } 30)$

4  $\frac{3}{7} \quad \frac{3}{4} \quad (\leq \text{ or } = \text{ or } < \text{ or } >)$

5 The opposite figure is called .....   $(KL \text{ or } LK \text{ or } LK \text{ or } KL)$

6 The measure of the acute angle is .....  
(more than  $90^\circ$  or  $180^\circ$  or less than  $90^\circ$  or  $90^\circ$ )

7 Two straight lines that never meet are called ..... straight lines.  
(intersecting or parallel or perpendicular or equal)

Second: Complete the following:

1  $50 + 0.8 + 0.03 = \dots$

2  $\frac{5}{7} + \dots = 1 \frac{1}{7}$

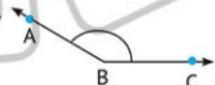
3  $\frac{15}{7} = \dots$

4  $\dots - 3 \frac{3}{4} = 2 \frac{1}{4}$

5 The type of angle whose measure is  $120^\circ$  is .....

6 A triangle whose side lengths are ..... cm, 5 cm, and 5 cm is called an equilateral triangle.

7 A polygon that has three sides is called .....

8 The measure of angle ABC is ..... 

Third: Choose the correct answer:

1  $8 \frac{5}{100} = \dots$   $(80.05 \text{ or } 80.5 \text{ or } 8.05 \text{ or } 8.5)$

2 The fraction whose numerator is one-third its denominator in the following is .....  $(\frac{3}{6} \text{ or } \frac{3}{4} \text{ or } \frac{2}{6} \text{ or } \frac{3}{1})$

## Final Revision

3 The decimal that represents the corresponding model is ..... (4.6 or 6.4 or 0.4 or 0.6)

4 The number that represents the Hundredths in 25.34 is ..... (2 or 5 or 3 or 4)

5 The type of triangle that contains a right angle and two acute angles according to the type of its angles is a/an ..... triangle. (right or acute or obtuse or equilateral )

6 The angle whose measure is ..... is called an obtuse angle. (185° or 180° or 95° or 90°)

7 The number of lines of symmetry of a rectangle is ..... . (4 or 2 or 1 or 0)

### Fourth: Answer the following:

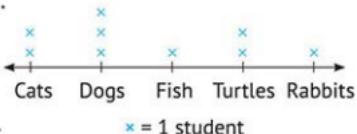
1 Hossam bought a book for  $4\frac{3}{5}$  pounds. If he had 8 pounds, how much money does he have now?

2 Using a protractor, draw an angle of 85°:

3 The following line plot graph shows the number of students who prefer to keep pets:

a How many students prefer to keep fish?

b What kind of pets do the students like most?



## Qalyubiyya Governorate - Banha Educational Zone

7

First: Choose the correct answer:

1  $\frac{2}{4} + \frac{2}{4} + \frac{2}{4} = \dots$

$(\frac{6}{4} \text{ or } \frac{2}{12} \text{ or } \frac{1}{2} \text{ or } \frac{6}{12})$

2 20.4 2.04

$(\geq \text{ or } < \text{ or } = \text{ or } >)$

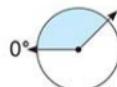
3 Three-eighths = .....

$(\frac{5}{3} \text{ or } \frac{3}{5} \text{ or } \frac{8}{3} \text{ or } \frac{3}{8})$

4 Eighty-three and three-hundredths = ..... (30.83 or 83.03 or 83.3 or 3.83)

5 The opposite figure is called ..... A — B (AB or BA or BA or BA)

6 The shaded part of the opposite circle represents an angle of ..... °.



(90 or 45 or 180 or 135)

7 The decimal that represents the shaded part in the opposite figure is ..... 

(6.0 or 0.16 or 0.6 or 0.06)

Second: Complete the following:

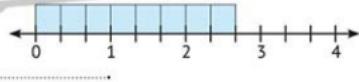
1  $\frac{3}{8} = \frac{9}{\dots} = \frac{\dots}{48}$

2 In the fraction  $\frac{3}{\dots}$ , the numerator is half the denominator.

3  $\frac{3}{7} = \dots + \dots + \dots$

4 The value of the digit 0 in 20.35 is .....

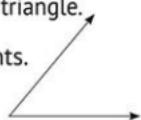
5 The fraction that is represented on the corresponding number line is .....



6 The triangle that contains ..... acute angles is called an acute triangle.

7 ..... is a part of a straight line that has two endpoints.

8 The measure of the opposite angle is ..... °.



**Third:** Choose the correct answer:

1  $\frac{3}{8}$    $\frac{3}{5}$

( $\leq$  or  $=$  or  $>$  or  $<$ )

2  $5 \frac{3}{4}$  is called a/an .....

(proper fraction or improper fraction or mixed number or whole number)

3 The ..... angle whose measure is greater than  $90^\circ$ .

(acute or right or obtuse or zero)

4  $12.05 = \dots$   $(10 + 2 + 0.5$  or  $1 + 2 + 0.05$  or  $10 + 2 + 5$  or  $10 + 2 + 0.05)$

5 The shaded part on the corresponding circle

represents an angle whose measure is .....  $^\circ$ .



( $120^\circ$  or  $90^\circ$  or  $60^\circ$  or  $30^\circ$ )

6 The unit of angle measurement is .....

(protractor or degree or centimeter or minute)

7 A quadrilateral with two pairs of parallel sides and four equal sides

is a .....

(rectangle or rhombus or trapezium or triangle)

**Fourth:** Answer the following:

1 Arrange in an ascending order:  $20.05$  ,  $2.5$  ,  $20.5$  ,  $2.05$

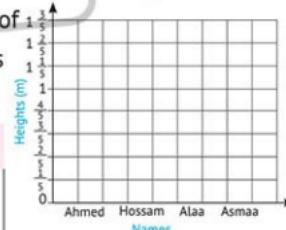
.....  $<$  .....  $<$  .....  $<$  .....

2 Draw the rest of the image to complete the opposite shape.



3 The following table represents the heights of a number of pupils in meters; represent this data using the opposite bar graph:

Name	Ahmed	Hossam	Alaa	Asmaa
Height	$1 \frac{1}{5}$	$1 \frac{2}{5}$	$1 \frac{3}{5}$	$1 \frac{1}{5}$



## Monufia Governorate - Quesna Educational Zone

First: Choose the correct answer:

1  $\frac{14}{9} =$  .....  
9

(5  $\frac{1}{9}$  or 1  $\frac{5}{9}$  or 4  $\frac{1}{9}$  or 1  $\frac{4}{9}$ )

2  $\frac{3}{5} \times$  ..... = 3  
5

(1 or  $\frac{5}{3}$  or 5 or 15)

3  $21 \frac{3}{100} =$  .....  
100

(20.13 or 21.03 or 21.3 or 2.13)

4 The Additive Identity Element is ..... . (2 or  $\frac{1}{2}$  or 1 or 0)

5 The measure of a straight angle is ..... . (270° or 180° or 90° or 60°)

6 A ..... is a tool for measuring angles.

(degree or centimeter or protractor or ruler)

7 The rectangle is a quadrilateral that contains ..... right angles. (4 or 3 or 2 or 1)

Second: Complete the following:

1  $\frac{5}{6} =$  ..... + .....  
6

2  $\frac{3}{9} =$  .....  
9

3  $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} =$  ..... X .....  
4 4

= .....  
=

4 The value of the digit 0 in 23.09 is ..... .

5 61.5 (In expanded form): ..... .

6  $24.5 =$  ..... Tens + ..... Ones + ..... Tenths.

7 The type of triangle in which all sides are equal in length according to the lengths of its sides is ..... .

8 The angle made by the two hands of the clock when they point to 3:00 is about ..... °.

## Third: Choose the correct answer:

1 Thirty and three-hundredths = ..... (30.03 or 0.33 or 3.03 or 30.3)

2 The number that is in the Tenths in 21.37 is ..... (2 or 1 or 3 or 7)

3 256 Hundredths = ..... (200.56 or 25.6 or 2.56 or 0.256)

4 The square has ..... lines of symmetry. (4 or 3 or 2 or 1)

5 The angle whose measure  $125^\circ$  is a/an ..... angle. (acute or right or obtuse or straight)

6 The number of acute angles in the right triangle is ..... (4 or 3 or 2 or 1)

7 A ..... is a line that continues forever in both directions. (straight line or line segment or ray or point)

## Fourth: Answer the following:

1 Find the result (In the simplest form):

a  $9\frac{3}{5} - 4\frac{1}{5} =$  .....      b  $\frac{3}{4} + \frac{5}{4} =$  .....

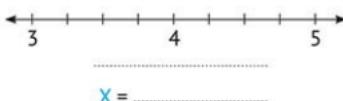
2 Use the following figure to write the type of each angle:

a Angle (1) is a/an ..... angle.  
 b Angle (2) is a/an ..... angle.  
 c Angle (3) is a/an ..... angle.



3 The following table shows the plant lengths in centimeters, represent this data using the line plot graph:

$4\frac{1}{4}$	$3\frac{1}{4}$	$3\frac{1}{2}$	5
$3\frac{1}{4}$	3	4	$4\frac{1}{4}$
$4\frac{1}{4}$	$3\frac{1}{2}$	$4\frac{1}{2}$	$3\frac{1}{2}$



## Al Sharqiya Governorate - Faqous Educational Zone

## First: Choose the correct answer:

1  $60 \frac{2}{10} = \dots$  (60.2 or 6.2 or 60.02 or 6.02)

2  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} = \dots$  ( $\frac{1}{5} + 5$  or  $\frac{1}{5} \times 4$  or  $\frac{4}{5} \times 5$  or  $\frac{1}{5} \times 5$ )

3 Three and three-hundredths = ..... (30.03 or 30.3 or 3.3 or 3.03)

4 The fraction whose numerator is ..... its denominator is a proper fraction.  
(greater than or greater than or equal or less than or less than or equal)

5 The model that represents  $\frac{3}{4}$  is ..... .

( or  or  or )

6 A triangle whose all sides are equal in length is called a/an ..... triangle.  
(equilateral or scalene or isosceles or right)

7 An angle whose measure is  $175^\circ$  is a/an ..... angle.  
(right or straight or obtuse or acute)

## Second: Complete the following:

1 ..... is a line that continues forever in both directions.

2 ..... is a quadrilateral with only one pair of parallel sides.

3 The square has ..... lines of symmetry.

4  $\frac{35}{45} = \frac{7}{\dots}$

5  $\frac{54}{10} = \dots$  (As a decimal)

6  $\frac{5}{10} + \frac{5}{100} = \dots$

7 The value of the digit 0 in 32.09 is ..... .

8  $2 \frac{3}{4} + 2 \frac{3}{4} = \dots$

## Third: Choose the correct answer:

1  $1 \frac{3}{4} + \dots = 3$

( $1 \frac{3}{4}$  or  $1 \frac{1}{4}$  or  $2 \frac{3}{4}$  or  $2 \frac{1}{4}$ )

2  $\frac{2}{10} \dots 0.02$

( $\geq$  or  $<$  or  $=$  or  $>$ )

## Final Revision

3 The right angle represents ..... of a circle.  
(fourth or half or three-fourths or three-eighths)

4 The measure of the right angle is less the measure of the ..... angle.  
(acute or right or obtuse or zero)

5 If the time is 8:10, then the hands of the clock form an angle measuring about ..... .  
( $120^\circ$  or  $180^\circ$  or  $240^\circ$  or  $60^\circ$ )

6 The vertex of the angle that is called  $\angle CAB$  is ..... . (D or A or B or C)

7 The shaded part of the opposite circle represents an angle whose measure is about ..... .  
( $90^\circ$  or  $135^\circ$  or  $180^\circ$  or  $270^\circ$ )



### Fourth: Answer the following:

1 Salma has  $\frac{5}{10}$  pound and Hoda has  $\frac{35}{100}$  pound.

What is the total amount of money they have?

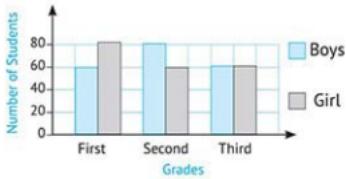
2 Draw an angle of  $120^\circ$ :

(Use a protractor)

3 Use the following double bar graph to answer the following questions:

a How many more girls than boys are in the second grade?

b In which class are there the same numbers of boys and girls?



## Al Gharbia Governorate - East Educational Zone

10

First: Choose the correct answer:

1 The fraction that represents the shaded part is ..... 

$$\left( \frac{3}{5} \text{ or } \frac{2}{5} \text{ or } \frac{3}{2} \text{ or } \frac{2}{3} \right)$$

2  $30 + 0.07 =$  .....

$$(30.07 \text{ or } 3.07 \text{ or } 30.7 \text{ or } 3.7)$$

3  $\frac{3}{8} + \frac{3}{8} =$  .....

$$\left( \frac{6}{16} \text{ or } \frac{5}{10} \text{ or } \frac{3}{10} \text{ or } \frac{6}{8} \right)$$

4  $\frac{3}{5} =$  .....

$$\left( \frac{9}{15} \text{ or } \frac{6}{15} \text{ or } \frac{8}{10} \text{ or } \frac{6}{2} \right)$$

5 The decimal that represents the shaded parts is .....



(2.00 or 2.70 or 2.07 or 20.70)

6 At which of the following times do the clock hands form an angle of about  $90^\circ$ ?  $(3:00 \text{ or } 2:45 \text{ or } 12:30 \text{ or } 2:00)$ 7 The measure of a/an ..... angle is greater than  $90^\circ$  and less than  $180^\circ$ .  $(\text{acute or obtuse or right or zero})$ 

Second: Complete the following:

1  $\frac{1}{3} = \frac{2}{\dots} = \frac{\dots}{9} = \frac{4}{\dots}$

2  $\frac{3}{5} \times \dots = \frac{6}{20}$

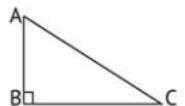
3  $20 + 8 + 0.3 =$  .....

4 The triangle has ..... sides.

5 The place value of the digit 3 in 23.65 is .....

6 9 Tens, 3 Ones, 2 Tenths = ..... (As a decimal)

7 ..... is the unit of measuring an angle.

8 In the opposite figure,  $\overline{AB} \perp$  .....

## Third: Choose the correct answer:

1  $2 \frac{5}{7}$    $2 \frac{5}{8}$

2 Fifty-three tenths = .....  (50.3 or 3.05 or 0.53 or 5.3)

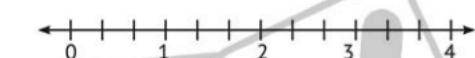
3  $\frac{8}{10} + \frac{8}{100} =$  .....  ( $\frac{88}{100}$  or  $1 \frac{6}{10}$  or  $\frac{16}{10}$  or  $\frac{16}{100}$ )

4 If you divide a circle into 4 equal parts, each part represents a/an ..... angle.  (acute or obtuse or right or straight)5 The measure of the straight angle is .....  (80° or 108° or 360° or 180°)6 The opposite angle measures about .....  (170° or 90° or 110° or 180°)7 The opposite figure is called .....  (XY or YX or XY or YX)

## Fourth: Answer the following:

1 Use the following number line to find:

•  $1 \frac{2}{3} + 1 \frac{2}{3} =$  .....



2 Study the following figure, then complete:

a  $\overline{AD} //$  .....

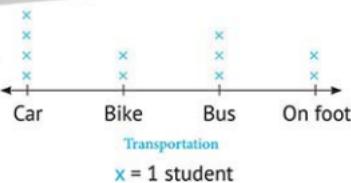


b  $\overline{AB} //$  .....

3 The line plot graph below shows the preferred way of going to school for a number of students. Study the chart, and then answer:

a How many students go to school by car?

b How many students go to school by bus and bike?



## Damietta Governorate - Ras El Bar Educational Zone

11

**First:** Choose the correct answer:

1 81  $\frac{5}{100}$

(80.15 or 8.15 or 81.5 or 81.05)

2 The opposite figure is called ..... C

(BC or CB or BC or CB)

3  $\frac{18}{36} =$

( $\frac{1}{2}$  or  $\frac{3}{6}$  or  $\frac{6}{12}$  or  $\frac{9}{18}$ )

4 1.4  $\frac{14}{100}$

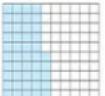
(&gt; or &lt; or = or &gt;)

5  $\frac{24}{10} =$

(20.04 or 20.4 or 2.04 or 2.4)

6 The two perpendicular straight lines intersect at ..... point(s). (3 or 2 or 1 or 0)

7 The decimal that represents the shaded part in



the opposite model is ..... (4.05 or 0.45 or 40.5 or 4.5)

**Second:** Complete the following:

1  $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$

2  $30 + 2 + 0.8 =$

3 24 Tents =

4  $3 \frac{3}{4} =$

5  $4.05 =$  (As a fraction)

6 The unit of measuring angles is

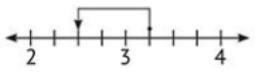
7 The place value of the digit 3 in 80.03 is

8 If it is 10 o'clock, then the hands of the clock form an angle of about ..... °.

**Third:** Choose the correct answer:

1 5 Tens + 3 Tents = ..... (50.3 or 30.5 or 5.3 or 3.5)

2 The value of the digit 0 in 58.06 is ..... (0.1 or 0 or 0.01 or 10)

3 The subtraction process that is represented  
on the opposite number line is ..... .

$$(3 \frac{1}{4} - 2 \frac{2}{4} \text{ or } 4 - \frac{3}{4} \text{ or } 3 \frac{1}{4} - \frac{3}{4} \text{ or } 2 \frac{2}{4} - \frac{3}{4})$$

## Final Revision

4 The angle whose measure is  $108^\circ$  is called a/an ..... angle.  
(straight or obtuse or right or acute)

5 The number of lines of symmetry that can be drawn in an isosceles triangle is ..... (0 or 1 or 2 or 3)

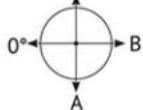
6 An acute triangle has ..... acute angle(s). (0 or 1 or 2 or 3)

7 A ..... is a quadrilateral with two pairs of parallel sides and all sides equal. (rectangle or trapezium or rhombus or parallelogram)

### Fourth: Answer the following:

1 If you move clockwise in the opposite figure, then:

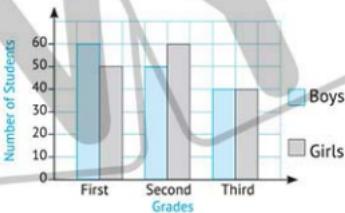
- The measure of the angle written at point A is ..... .
- The measure of the angle written at point B is ..... .



2 Hana bought a pizza pie and divided it into 10 equal portions; she gave Rana 0.4 of the pizza and gave Sarah 3 portions of the pizza. What decimal is the remainder? .....

3 The following double bar graph represents the numbers of girls and boys in the first three grades of a school. Complete the following table:

Grade	First	Second	Third
Boys			
Girls			



## First: Choose the correct answer:

1 The number line that represents the fraction  $\frac{3}{5}$  is .....



2 0.01

0.1

3  $\frac{3}{4} + \frac{3}{4} + \frac{3}{4} + \frac{3}{4} = \dots$

4  $5.05 = \dots$

5  $50 \frac{1}{100} = \dots$

6 If the time is 8:10, then the clockwise angle is .....

(60° or 240° or 180° or 120°)

7 The angle whose measure is 109° is called a/an ..... angle.

(acute or right or straight or obtuse)

## Second: Complete the following:

1  $\frac{5}{100} + \dots = \frac{55}{100}$

2  $12 = \dots$  Tenths

3  $30 + 4 + 0.2 + 0.03 = \dots$

4  $3 \frac{1}{4} = \dots$  5 Nine-fourths = .....

6 The type of angle whose measure is 91° is a/an ..... angle.

7 A rectangle is a quadrilateral that has ..... of parallel sides.

8 If you divide a circle into two halves, then the half of the circle represents an angle whose measure is ..... °.

## Third: Choose the correct answer:

1 3 Tens, 4 Ones, 5 Hundredths = ..... (34.5 or 34.05 or 3.45 or 30.45)

2 The place value of the digit 7 in 27.51 is .....

(Hundreds or Tens or Ones or Tens)

### Final Revision

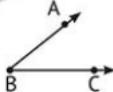
3 125 Tenths = ..... (10.25 or 12.05 or 1.25 or 12.5)

4 ..... is part of a line and has two endpoints. (Line segment or Ray or Straight line or Point)

5 5 cm, 7 cm, and ..... cm are the lengths of the sides of an isosceles triangle. (4 or 5 or 1 or 9)

6 A ..... is a quadrilateral with only one pair of parallel sides. (rectangle or trapezium or square or parallelogram)

7 The opposite angle is called angle ..... (A or CBA or ACB or BAC)



#### Fourth: Answer the following:

1 Using a protractor, draw an angle of  $120^\circ$ :

2 Arrange the fractions in an ascending order:  $\frac{3}{4}, \frac{3}{2}, \frac{3}{8}, \frac{3}{5}$

....., ....., ....., .....

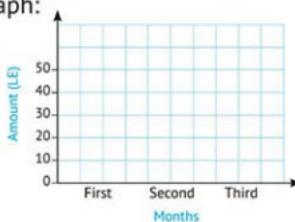
3 Ahmed has  $3\frac{25}{100}$  pounds. His mother gave him  $6\frac{75}{100}$  pounds.

How much money does Ahmed have now?

4 The following table shows what Sameh and Alaa saved in three months.

Represent this data using the double bar graph:

Months	First	Second	Third
Sameh	10	30	50
Alaa	30	40	50



## Port Said Governorate - Port Fuad Educational Zone

13

## First: Choose the correct answer:

1 The Multiplicative Identity Element is .....

( $\frac{2}{1}$  or  $\frac{1}{2}$  or 1 or 0)2  $0.08 =$  .....( $\frac{8}{92}$  or  $\frac{2}{8}$  or  $\frac{8}{100}$  or  $\frac{8}{10}$ )

3 Six- ..... = 1

(halves or fourths or fifths or sixths)

4 .....  $\times 2 = 1$ ( $\frac{2}{3}$  or  $\frac{3}{2}$  or  $\frac{2}{2}$  or  $\frac{1}{2}$ )5  $2\frac{1}{5} + 3\frac{4}{5} =$  .....( $5\frac{5}{10}$  or  $5\frac{3}{5}$  or 6 or 5)

6 350 Hundredths = .....

(3.05 or 35 or 3.50 or 0.35)

7 A triangle that contains a/an ..... angle and two acute angles is called a right triangle. (acute or right or obtuse or straight)

## Second: Complete the following:

1  $3\frac{40}{100} = 3\frac{\dots}{10}$

2 .....  $- 2\frac{1}{2} = 2\frac{1}{2}$

3  $\frac{5}{5} =$  .....

4  $\frac{15}{30} = \frac{\dots}{2}$

5  $8.5 =$  .....

6 35.07 = ..... Tens + ..... Ones + ..... Tenths + ..... Hundredths.

7 The estimate of the measure of an angle that is  $\frac{5}{6}$  of a circle is .....

8 The type of the triangle whose side lengths are 8 cm, 6 cm, and 4 cm according to the lengths of its sides is .....

## Third: Choose the correct answer:

1  $30 + 0.5 + 4 =$  ..... (34.05 or 34.5 or 30.54 or 3.54)

2 The value of the digit 9 in 96.23 is ..... (0.09 or 0.9 or 90 or 9)

3 A ..... is a quadrilateral with four right angles and all sides of equal length. (rhombus or rectangle or square or trapezium)

## Final Revision

4 The estimate of the angle shown is ..... .

(200° or 150° or 100° or 50°)



5 The opposite angle is a/an ..... angle.

(acute or obtuse or right or straight)

6 Any triangle has at least ..... acute angle(s). (1 or 2 or 3 or 4)

7 The measure of an obtuse angle is less than the measure of

the ..... angle.

(acute or right or straight or zero)

### Fourth: Answer the following:

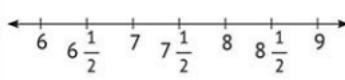
1 Draw the angle XYZ of 105°:

2 Salma drinks  $\frac{3}{4}$  liter of juice every day. How much juice does she drink in 8 days?

3 The following data represents the results achieved by a number of students in the mathematics test.

Represent the data using the line plot graph:

$7\frac{1}{2}$	7	$8\frac{1}{2}$	6
$8\frac{1}{2}$	$7\frac{1}{2}$	7	$6\frac{1}{2}$
$6\frac{1}{2}$	7	$8\frac{1}{2}$	7



X = .....